CENTRAL STATISTICAL OFFICE

Economic Trends

ARTICLES

The economic situation

An assessment of the sensitivity of the national accounts constant price estimates to changes in the base year and alternative methods of calculation

Private sector housing land prices in England and Wales

No 244
February 1974
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Release dates of economic statistics to be published in March 1974

This list is published by the Government Statistical Service as a guide to the dates of publication of major economic series in March. The dates are those which Departments, or other organisations concerned, are aiming at, and would normally expect to meet. They are always subject to the possibility of a delay resulting from unavoidable statistical problems of collection and compilation. There may, however, be exceptional delays occasioned by the present emergency measures, although some allowance for this has been made in dates given for March. Further enquiries about individual series should be addressed to the source named.

March 1974	*Series*	*Method of release*	*Source*
Mon 4	UK official reserves (February)	PN	Treasury
	Capital expenditure by the manufacturing, distributive and service industries (4th qtr-provisional)	PN	DTI
	Manufacturers' and distributors' stocks (4th qtr-provisional)	PN	DTI
	Hire purchase and other instalment credit business (January)	PN	DTI
	Retail trade (January-final)	PN	DTI
	Capital issues and redemptions (February)	PN	Bank of England
Wed 6	Construction–output (4th qtr)	PN	D of the Environment
Thurs 7	Car and commercial vehicle production (February-provisional)	PN	DTI
	Consolidated Fund and National Loans Fund (February)	LG	Treasury
Mon 11	Wholesale prices index numbers (February)	PN	DTI
	Retail trade (February-provisional)	PN	DTI
	Turnover of the catering trades (January)	PN	DTI
Wed 13	UK balance of payments (4th qtr)	PN	CSO/Treasury
	UK banks' eligible liabilities, reserve assets and reserve ratios (mid-February)	PN	Bank of England
	London clearing banks monthly statement (mid-February)	PN	Ctte. LCB
Fri 15	Crude steel production (February)	PN	BSC/BISPA
	Finished steel receipts, consumption and stock changes (4th qtr-final)	PN	DTI
	Building societies' receipts and loans (February)	PN	Building Societies Assn.
	UK banking statistics (4th qtr)	Bulletin	Bank of England
	Money stock (4th qtr)	Bulletin	Bank of England
Wed 20	Basic rates of wages and normal weekly hours (end-February)	PN	D of Employment
	Monthly index of average earnings (January)	PN	D of Employment
Thurs 21	Unemployment (March-provisional)	PN	D of Employment
	Unfilled vacancies (March-provisional)	PN	D of Employment
	Sales and orders in the engineering industries (November)	T and I	DTI
	Car and commercial vehicle production (February-final)	PN	DTI
	Index of industrial production (January)	PN	CSO
Fri 22	Retail prices index (February)	PN	D of Employment
	New vehicle registrations (February)	PN	D of the Environment
	Quarterly analysis of bank advances (mid-February)	PN	Bank of England
	Borrowing by local authorities (4th qtr)	PN	CSO
Sun 24	National savings monthly progress report (February)	PN	National Savings Ctte.
Mon 25	UK banks' assets and liabilities and the money stock (mid-February)	PN	Bank of England
Tues 26	Balance of payments current account and overseas trade figures (February)	PN	DTI/CSO
Wed 27	Construction–new orders (January)	PN	D of the Environment
Thurs 28	Bricks and cement production (February)	PN	D of the Environment
	Energy trends	T and I	D of Energy
	Housing starts and completions (February)	PN	D of the Environment
	House improvement grants approved (February)	PN	D of the Environment
	Unemployment (February-final)	Gazette	D of Employment
	Employment in production industries (January)	Gazette	D of Employment
	Overtime and short-time working in manufacturing industries (January)	Gazette	D of Employment
	Stoppages of work due to industrial disputes (February)	Gazette	D of Employment
Fri 29	National Food Survey report on consumption (4th qtr)	PN	MAFF

PN=*Press Notice* LG=*London Gazette* T and I=*Trade and Industry*

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Economic Trends

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ECONOMIC TRENDS

No. 244 February 1974

CORRECTIONS

Article—' Private sector housing land prices in England and Wales '

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Table G

1969, line 4, ' East Anglia ', Col. 3, *Coefficient of variation*

Delete 66·7 **Insert** 6·7

1970, line 8, 'South East (excluding', Col. 5, *Standard error*

Delete 35

Table H

1970, line 6, 'Outer Metropolitan Area', Col. 4, *Standard error*

Delete 522 **Insert** 520

Central Statistical Office

March 1974

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INTRODUCTION

Economic Trends is prepared monthly by the Central Statistical Office in collaboration with the statistics divisions of Government Departments. It provides charts and tables illustrating trends in the United Kingdom economy. In addition, there are articles which comment on and analyse economic statistics, introduce new series or describe methods used in compiling official statistics. This issue contains information available to the Central Statistical Office on or before 18 February 1974.

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Government Statistical Service

A service of statistical information and advice is provided to Government by specialist staffs employed in the statistics divisions of individual Departments. Statistics are made generally available through their publications and further information and advice on them can be obtained from the Department concerned. The sources of the series published in this volume and further information about them are shown on page 43. Current telephone numbers of these sources as well as general information about *Economic Trends* can be obtained from the Central Statistical Office, Great George Street, London SW1P 3AQ. Telephone 01-930 5422 Ext 602.

Enquiries about orders and subscriptions should be made to the publisher, Her Majesty's Stationery Office, PO Box 569, London SE1 9NH Telephone 01-928 6977.

The economic situation

The effects of the energy situation

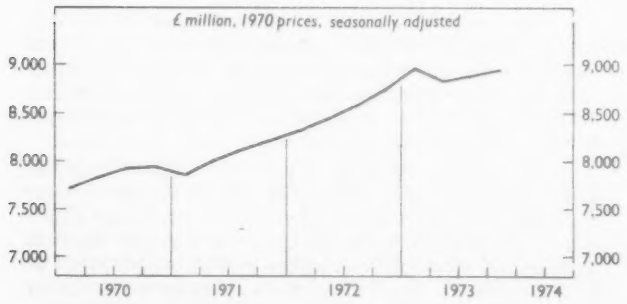
The level of economic activity has been heavily affected by the dispute in the coal industry. Reports from industry suggest that during January manufacturing production was being reduced by an estimated 20 to 25 per cent below normal production as a result of the dispute. There was a substantial rise in unemployment in January and a smaller rise in February. Cash flow problems do not yet appear to be serious for the majority of companies and the latest CBI Industrial Trends Survey indicates that few of them yet expect credit or finance to be an important constraint on output. However, this survey also reveals a fall in business confidence.

At present supplies of oil to industrial, commercial and domestic consumers are still being restricted to 90 per cent of last year's level, but the oil supply prospect has eased somewhat in recent weeks.

Demand

The second preliminary estimate of consumers' expenditure shows a rise of just over ½ per cent in the fourth quarter, giving a small increase between the two halves of 1973. There was a rise of 1½ per cent in the volume

Consumers' expenditure



of retail sales between the third and fourth quarters, which was probably associated in part with the increase in national insurance benefits in October and the Christmas bonus payment to pensioners.

In January, however, the volume of retail sales is provisionally estimated to have fallen back by about 2½ per cent, when it was probably affected by the credit restrictions and restrictions on shop opening hours. A fall in sales of durable goods in December suggests that the credit restrictions may already have begun to have an effect in that month. New car registrations, which had fallen in December, fell further in January.

The latest CBI Industrial Trends Survey, published on 7 February and conducted in the middle two weeks of January, suggests that the 3-day week and associated shortages may have already led to delays in some investment programmes and deferment of decisions on others. In the survey a balance of 3 per cent of firms now expects to authorise less investment in plant and machinery in the next twelve months than in the previous twelve, whereas in the last survey the balance expecting more investment was a near-record 38 per cent.

The CBI survey also suggests that in late 1973 there was a stockbuilding of raw materials and bought-in supplies but some de-stocking of finished goods. Firms expect stocks both of raw materials and of finished goods to fall sharply in the first quarter of 1974.

Output

In December, the index of industrial production, which is less well-based than usual, was nearly 4 per cent lower than in November and about 4¼ per cent lower than the average level in August to October, before the miners' overtime ban began. About one-third of this latter reduction is directly accounted for by lower coal and electricity output and much of the remainder presumably reflects the indirect effects of the dispute on other industries. Output in the food, drink and tobacco industries was little affected but the recorded fall was fairly evenly spread among most other sectors of manufacturing industry. Reflecting the November and December fall in industrial production, the provisional output estimate of gross domestic product fell by ½ per cent in the fourth quarter of 1973, and in the second half as a whole was 4 per cent higher than a year earlier.

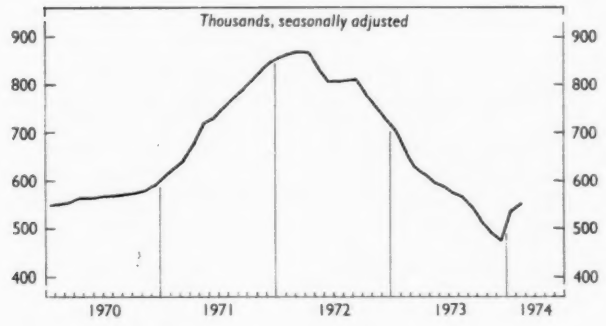
According to the CBI Industrial Trends Survey, whose evidence is broadly supported by other reports, manufacturing output may have been running at 20 to 25 per cent below normal in January. The main effect is on firms limited to 3-day working, but some exempt or continuous process industries have been affected where they depend for raw materials or components on firms limited to 3-day working. Crude steel production in January was more than 15 per cent lower than in December and 24 per cent lower than in January 1973.

Labour market

The seasonally adjusted total of unemployed in Great Britain, excluding school-leavers and adult students, rose by 14,000 in February following a rise of 60,000 in the January count. The unemployment rate remained at 2·4 per cent compared with 2·1 per cent in December and

Note: Unless otherwise stated, this report is based on seasonally adjusted data.

Unemployed excluding school-leavers and adult students
Great Britain



3·8 per cent in the early months of 1972. Unfilled adult vacancies fell by 26,000 in February following a larger fall in January. There has been some decline in recent weeks in the number of workers temporarily stopped.

Trade and balance of payments

In January the current account is estimated to have been in deficit by about £312 million. The deficit on trade in goods was £383 million and the balance on services and other current transactions is estimated to have been running at a monthly surplus of about £71 million. The cost of oil contributed significantly to the deficit: imports of crude oil were £210 million c.i.f. in January compared with £108 million a month in 1973, and its landed price was £21 per ton c.i.f. in January compared with an average of £11½ in 1973. Trade during this period must also have been affected by short-time working but this cannot be quantified at present. The value of exports in January was £1,025 million on a balance of payments basis. In the three months November 1973 to January 1974 they were 2 per cent higher than in the previous three months. Imports were £1,408 million in January; in the three months to January they were 8 per cent higher by value than in the previous three months, with imports of fuels 26 per cent higher. The terms of trade have continued to worsen and in the final quarter of 1973 (the latest period for which information is available) import unit values rose 10 per cent and export unit values 6 per cent.

Prices and incomes

Retail prices (not seasonally adjusted) increased by just under 2 per cent in January, following increases of about ¾ per cent in both November and December. The food index increased by some 3 per cent in the month, with prices of seasonal foods rising on average by nearly 4½ per cent, and there was also a rise of almost 1½ per cent in non-food prices, including an increase of 3p a gallon in petrol prices.

The index of wholesale prices of basic materials and fuels purchased by manufacturing industry (not seasonally adjusted) increased by 17 per cent in January, making them 65 per cent higher than a year earlier. More than three-quarters of the January increase was due to a 90 per cent rise in prices of crude oil (inclusive of freight). The whole of the second increase in the posted price of crude oil announced at the end of December is included in the January index, although the oil products purchased by manufacturers in January would not of course have fully reflected the crude oil price increase. Prices of home sales of manufactured products rose by 2¾ per cent in January compared with an average monthly increase of 1¼ per cent in the second half of last year. This index normally rises at about twice the average monthly rate in January, reflecting the timing of periodic price reviews by many manufacturers.

The index of hourly wage rates (not seasonally adjusted) increased by about ¾ per cent in January following a slightly larger increase of nearly 1 per cent in December. The seasonally adjusted index of average earnings, which is available only up to December, increased by almost ¾ per cent in that month; it was held down somewhat by the effect of the overtime ban in coal-mining.

Financial developments

In the five weeks to mid-January, the narrow version of the money stock, M_1, rose by ¼ per cent, and the broad version, M_3, by 2¼ per cent. Over the latest three banking months, M_1 rose by 1½ per cent and M_3 rose by 6 per cent. These figures incorporate new seasonal adjustments which take account of VAT and make better allowance than has hitherto been possible for the crediting and debiting of half-yearly interest and charges.

The strongest expansionary influence on M_3 in January was again bank lending to the private sector in sterling, which rose by £510 million, much the same as the revised figures for November and December. The January figure includes however some support lending for 'fringe' banks, which suggests some small moderation in the underlying trend of bank lending and of M_3.

In the last two weeks of January, the banks' reserves came under pressure, largely as the result of a bigger Exchequer surplus than had been foreseen. Some short-term interest rates in consequence rose sharply. As such tightness of monetary conditions was not appropriate at a time when the liquidity of many companies was under strain because of the industrial difficulties, a repayment of ½ per cent of special deposits was announced on 31 January, and this took effect on 4 February.

Following the Treasury bill tender on 1 February, minimum lending rate fell by ¼ per cent to 12½ per cent. This resulted primarily from technical factors and, in particular, the small amount of Treasury bills on offer.

The UK official reserves fell by $298 million during January after accruals of foreign currency borrowing by the public sector under the exchange cover scheme totalling $12 million. At the end of January they stood at $6,178 million.

25 February 1974

HM Treasury

An assessment of the sensitivity of the national accounts constant price estimates to changes in the base year and alternative methods of calculation

National accounts estimates of expenditure and output revalued at 1970 prices were first published in *National Income and Expenditure 1973* (the Blue Book) and have since been used as the basis for measuring changes in the gross domestic product at constant factor cost in the quarterly articles published in *Economic Trends*. In the October 1973 issue of *Economic Trends* the following preliminary assessment was given of the effects of rebasing on the estimated changes between 1963 and 1970 shown by the expenditure-based estimate of gross domestic product at constant factor cost and its main components.

Analysis of revisions to estimated changes between 1963 and 1970 in the expenditure-based estimate of gross domestic product at constant factor cost

	Previous published estimate	Effects of revisions to current price estimates	Effects of changes in methodology	Effects of rebasing on 1970	1973 Blue Book estimate
Percentage changes in:					
Consumers' expenditure	+16½	—½	—¾	—1	+14½
Gross domestic fixed capital formation	+42¾	—1	—	+1¼	+43
Exports of goods and services	+48½	—	—	—1½	+47
Imports of goods and services	+40½	+¼	—	—¾	+40
Gross domestic product	+21¼	—½	—¼	+½	+20½

This article describes the results of a more detailed anaiysis of the expenditure-based constant price estimates for that period, examining the sensitivity of the estimates to the change in the base year and to alternative methods of construction. The results of an analysis of the output-based estimate will be published soon.

Before the results of this analysis are given, the nature of the constant price estimates deserves some attention. The purpose of constructing national accounts constant price estimates is to be able to distinguish that part of changes in the value of goods and services produced which reflects changes in quantities from that which reflects changes in prices. Thus the constant price estimates aim to represent quantities of goods and services revalued at the average prices of a given period (the base year). The changes shown by constant price estimates are the same as those which would be shown by a base-weighted (Laspeyres) volume index number, where changes in quantities are weighted together by the relative values of a fixed base period.* Constant price estimates in this form are convenient for the user to handle because they are additive (that is, any aggregate is still the sum of its components as at current prices)†; also volume indices in the Laspeyres form have the theoretical advantage that comparisons can be made between any two periods (certain other forms of index strictly enable comparisons to be made only with the base period). Even though presented in terms of £ million, it should always be remembered that the constant price estimates are essentially volume index numbers in the Laspeyres form and are subject, therefore, to any limitations attaching to such statistical constructs. In particular, there is no unique estimate of 'real' changes in the national accounts aggregates. This article does, however, attempt to give some guidance on the range within which such estimates of 'real' changes may fall.

The analysis which follows should also be seen in the context of all the possible sources of error which arise when attempting to construct estimates at constant prices. In order to make a proper distinction between price changes and volume changes the unit of measurement for each good or service should be homogeneous but in practice only a rough approximation to the theoretical ideal may be achieved. Where data are available for homogeneous categories of goods or services it may be possible to construct direct estimates of changes in volume from physical quantities multiplied by base-year prices. Often, however, categories of goods or services for which data are available are by no means homogeneous and the approach adopted is to estimate volume changes from

*An index number in the form $\frac{\Sigma q_n p_o}{\Sigma q_o p_o}$ or $\frac{\Sigma p_o q_o . \frac{q_n}{q_o}}{\Sigma p_o q_o}$ where o is the fixed base period and n is the period for which the index is constructed.

†The volume estimates published for periods far removed from the current base year do not have this characteristic because the volume changes shown by the calculations at the prices of a base year closer to the period in question have been retained. Thus, although each published series is expressed at the price level of 1970, the volume changes for years prior to 1963 reflect calculations at the prices of earlier base years, each series being simply scaled up to the 1970 price level (see *National Income and Expenditure 1973*, page 97).

changes in value divided by the changes shown by an appropriate price index. But unless data on prices can be collected for a sufficiently wide range of goods and services of constant specification, and these price changes can be combined by appropriate weights, the resulting estimates of changes in volume may be unsatisfactory. Changes in the quality of goods or services may make it difficult to ensure that the goods or services being priced are of constant specification and sometimes any allowance for quality change can be determined only arbitrarily. New and disappearing products also present problems of measurement to which there are often no very satisfactory solutions.

The analysis carried out is chiefly aimed at testing the sensitivity of the estimated volume changes to weighting by different sets of relative prices. It will be readily apparent, however, that the analysis can be carried out only within the actual system of estimation used. If the estimates had been made from less aggregated value data, or more detailed price data, then the conclusions to be drawn from the results of the analysis could be somewhat different.

The main components of the expenditure-based estimate of gross domestic product were each examined in turn with the following questions in mind:

(a) Given the existing methodology underlying the constant price estimates, how wide a range of estimates for the volume changes between 1963 and 1970 is obtained by basing the calculations on different sets of relative prices? In particular, what are the implications for the measurement of gross domestic product?

(b) What is the effect of using base-weighted price indices for the deflation of current values (current-weighted indices strictly being required when the aim is to construct base-weighted volume indices)?‡ In particular, how important is this theoretical defect when the resulting volume estimates are used to measure changes between periods other than the base period?

(c) What are the effects of using chain indices for deflation in contrast to base or current-weighted price indices?

‡If $\Sigma q_n p_o$ is to be derived from $\Sigma p_n q_n$ (current values) a deflator is required in the form $\frac{\Sigma q_n p_n}{\Sigma q_n p_o}$ or $\frac{\Sigma q_n p_n}{\Sigma q_n p_n \cdot \frac{p_o}{p_n}}$

Conclusions

A detailed description of the analysis is given in the annex below. The results suggest that the following conclusions might be drawn:

(a) (i) On the basis of existing methodology and available data the range of possible estimates for the volume changes between 1963 and 1970, in real gross domestic product and its main expenditure components, is not unduly great, suggesting that during such a period a full rebasing of the constant price estimates is probably not necessary any more frequently than once every five years. (It had been intended to rebase on 1968 but the choice of 1970 was made for convenience in international reporting of national accounts estimates.)

(ii) The same appears to be broadly true of most series within the main components, though some categories of consumers' expenditure show significantly different volume changes.

(b) Given that most of the calculations are carried out at a considerable degree of disaggregation, the use of base-weighted deflators is probably not in practice a serious deficiency in the method of estimation, and it is unlikely to be any more serious than other deficiencies in the data on price movements.

(c) The use of chain indices for deflation does not appear to lead to any serious deficiencies in the constant price estimates.

Central Statistical Office

ANNEX

General comments on the relative prices underlying the published estimates

Although estimates of expenditure expressed in terms of the level of prices existing in 1970 are published for a long run of years (a span of twenty-one years is given in Table 14 of the Blue Book), these estimates are not calculated by revaluing, at the maximum level of disaggregation, each item of expenditure at 1970 prices. This is because it is thought that the partitioning of changes in value between their volume and price components is best carried out in terms of the relative prices and quantities which existed during the periods under examination. Thus, the present published estimates for the period 1958 to 1963, for example, still show the same changes in volume as those previously published which were expressed in terms of the price level in 1963. Each of the published series for that period has simply been scaled up to the 1970 price level appropriate for that individual series, and it is therefore no longer a property of these constant price series that they are the sum of their components. The published constant price estimates for the long run of years reflect, therefore, volume estimates calculated at the relative prices of a number of different years and have in effect, the character of chained volume indices with linking in the years previously used as base years for the constant price estimates, namely 1948, 1954, 1958 and 1963.

However, the procedures followed for the expenditure-based estimate of gross domestic product at constant factor cost, and its main components, have not simply been to calculate the volume changes at one set of relative prices for any period and then link these movements together. If the volume changes for each published series calculated at the relative prices of 1963 had simply been retained for the period 1963 to 1970, for example, the 'adding-up' problem referred to above would now exist for all years prior to 1970. Since it is thought that most users regard it as an advantage to have constant price estimates with the property that each aggregate equals the sum of its components, the procedure adopted from 1963 onwards has been to link the volume series separately, at least for each of the published components (and sometimes in greater detail), before aggregating. The effect of this procedure is that the volume estimates for the period 1963 to 1970 generally reflect changes in quantities revalued at the relative prices of 1963 within each published component and revalued at the relative prices of 1970 between these components. The volume changes for earlier periods similarly reflect changes in quantities revalued at the relative prices of the two base years at the beginning and end of the period in question. One of the questions examined below is the extent to which the use of these 'mixed' systems of valuation may affect the results obtained, as compared with volume changes calculated at a single set of relative prices.

Consumers' expenditure

In Table A are given three estimates of the volume changes in consumers' expenditure and its main components between 1963 and 1970. The alternative sets of estimates are the result of calculations intended to reflect (1) quantities revalued at the relative prices of 1963, (2) quantities revalued on the basis of the mixed weighting system described above (that is, the present published estimates) and (3) quantities revalued at the relative prices of 1970. For total consumers' expenditure the volume change of 14·5 per cent shown by the present published estimates is much closer to (3) than to (1), though for individual components this is not so. The volume change of 15·7 per cent shown by the estimates at the relative prices of 1963 differs from that previously published (16·4 per cent) partly because of revisions to current price estimates or changes in methodology. An additional reason, however, is that wherever practicable an attempt has been made in this analysis, where expenditure is revalued by deflating with a price index, to use a deflator in the theoretically appropriate form. Thus, for example, when expenditure on footwear in 1970 is revalued at 1963 prices the weights for the deflator should reflect the pattern of expenditure in 1970 on the different types of footwear for which separate price indicators are available (that is, the deflator should be current-weighted). This procedure may not always be practicable when estimates are first compiled, even though it may be possible in retrospect, and base-weighted deflators may be used purely on practical grounds. The effects of this theoretical defect are now examined for some of the main categories of consumers' expenditure where deflated values are used to measure volume changes.

Percentage increases in components of consumers' expenditure between 1963 and 1970

TABLE A

	Measured at 1963 prices (1)	As published (2)	Measured at 1970 prices (3)
Food	6·6	6·2	5·3
Alcoholic drink	32·0	31·9	31·0
Tobacco	—3·0	—3·0	—3·1
Housing	23·2	22·6	21·6
Fuel and light	12·0	8·5	8·6
Clothing	19·6	18·9	19·2
Cars	29·7	29·7	28·5
Other durables	12·7	11·4	11·1
Household goods	22·2	22·2	22·5
Books, etc.	—4·3	—5·3	—5·3
Chemists' goods	18·7	18·6	18·3
Miscellaneous recreational	33·7	33·1	33·4
Other miscellaneous	2·7	1·1	0·5
Running costs	84·9	83·2	82·2
Travel	10·9	4·0	4·7
Communications	53·8	50·9	48·9
Entertainment	16·6	8·5	8·1
Domestic service, catering, insurance and other services	7·9	7·1	5·0
Income in kind	—15·2	—25·4	—24·1
Expenditure by foreign tourists, etc. in the UK	47·5	47·6	48·0
Consumers' expenditure abroad	1·8	1·9	1·9
Total	15·7	14·5	13·9

Table B gives figures for twelve categories of retail sales calculated on a number of alternative bases. The categories covered represent about 20 per cent of total consumers' expenditure and perhaps one-half of the categories where volume is measured by deflated expenditure. For each of the categories shown, though not for the total, the volume change between 1963 and 1970 is identical in columns (1) and (4), where the deflators are weighted according to the pattern of expenditure within each category in 1963. The volume changes are also identical in columns (2) and (3) where the weighting system reflects the pattern of expenditure within each category in 1970. For each category the effect of using a base-weighted deflator is to lead to an estimated volume change equal to that which would be obtained if the volume change were measured in terms of the relative prices of the current year. Thus, when aggregated over all twelve categories, column (1) gives the volume change using 1970 relative prices within categories, but 1963 relative prices between categories, and *vice-versa* for column (3). The volume changes given in column (2) and (4) reflect the same set of relative prices within and between categories, 1963 and 1970 respectively.

Percentage change between 1963 and 1970 in the volume of consumers' expenditure on selected categories of retail sales

TABLE B

	Expenditure in 1970 revalued at 1963 prices		Expenditure in 1963 revalued at 1970 prices	
	Using base-weighted deflator(1) (1)	Using current-weighted deflator(1) (2)	Using base-weighted deflator(1) (3)	Using current-weighted deflator(1) (4)
Footwear ..	+13·3	+13·7	+13·7	+13·3
Men's wear ..	+18·0	+18·0	+18·0	+18·0
Women's wear ..	+21·7	+22·2	+22·2	+21·7
Furniture and floor coverings	+8·2	+8·9	+8·9	+8·2
Radio and electrical ..	+14·1	+16·4	+16·4	+14·1
Household textiles	+18·4	+18·1	+18·1	+18·4
Hardware ..	+40·2	+40·5	+40·5	+40·2
Chemist's goods..	+16·6	+16·8	+16·8	+16·6
Miscellaneous recreational goods	+40·8	+40·8	+40·8	+40·8
Other goods ..	+0·8	+2·7	+2·7	+0·8
Radio and TV rental	+60·8	+60·8	+60·8	+60·8
Radio and TV relay	+64·0	+64·0	+64·0	+64·0
Total	+19·5	+20·1	+19·7	+19·1

(1) 'Base year' means the year at the relative prices of which the calculations are made (that is, 1963 in columns (1) and (2), and 1970 in columns (3) and (4)); 'current year' means any year with which the base year is compared (1970 in columns (1) and (2), 1963 in columns (3) and (4)).

On the basis of the analysis of these particular categories we might tentatively conclude that, given the probable margins of error of the constant price estimates—which as already mentioned may stem, for example, from the failure to deal adequately with quality changes or obtain a sufficiently representative set of price indicators, the use of base-weighted deflators rather than current-weighted deflators appears to have very little effect on the estimated volume change over this seven-year period. It should be noted that one important reason for this is, of course, that the calculations are carried out at a fair degree of disaggregation. If deflation were carried out at a higher level of aggregation the need for current-weighted deflators would assume greater importance.

The next question to be examined was how far the use of base-weighted deflators affected the estimation of volume changes between years other than the base year. Table C shows the estimated volume changes between 1969 and 1970 for the sum of the twelve categories given in Table B, using a variety of weighting systems for the deflators.

Percentage change between 1969 and 1970 in the volume of consumers' expenditure on twelve categories of retail sales(1)

TABLE C

(1) Expenditure in 1969 and 1970 revalued at 1963 prices using base-weighted (1963) deflators	+2·8
(2) Expenditure in 1969 and 1970 revalued at 1963 prices using current-weighted (1969 and 1970) deflators..	+3·2
(3) Expenditure in 1969 revalued at 1970 prices using current-weighted (1969) deflators	+2·9
(4) Expenditure in 1970 revalued at 1969 prices using current-weighted (1970) deflators	+3·0

(1)The formula for each of the deflators used to obtain the estimates compared are as follows:

(1) $\dfrac{\Sigma p_{63}q_{63}\dfrac{p_{69}}{p_{63}}}{\Sigma p_{63}q_{63}}$ and $\dfrac{\Sigma p_{63}q_{63}\dfrac{p_{70}}{p_{63}}}{\Sigma p_{63}q_{63}}$

(2) $\dfrac{\Sigma p_{69}q_{69}}{\Sigma p_{69}q_{69}\dfrac{p_{63}}{p_{69}}}$ and $\dfrac{\Sigma p_{70}q_{70}}{\Sigma p_{70}q_{70}\dfrac{p_{63}}{p_{70}}}$

(3) $\dfrac{\Sigma p_{69}q_{69}}{\Sigma p_{69}q_{69}\dfrac{p_{70}}{p_{69}}}$

(4) $\dfrac{\Sigma p_{70}q_{70}}{\Sigma p_{70}q_{70}\dfrac{p_{69}}{p_{70}}}$

Again, the differences are relatively small. One interesting point which emerges from the analysis, however, is that a result of using base-weighted deflators may be to lead to an estimated volume change which, though biased, is closer to that estimated at the relative prices of a more recent year than the volume change estimated at the relative prices of some distant year, in this case 1963 (that is, the change shown in line (1) is closer than that given in line (2) to those in lines (3) and (4)).

The final question examined in relation to the consumers' expenditure estimates was the extent to which the calculations might be affected by the use of chain indices for deflation. For this purpose it was decided to examine the effects of using different types of deflator for the revaluation of expenditure on transport and vehicles, the coverage of this category to be defined as for the general index of retail prices (RPI) in order that the chain-linked component of the RPI could be used as one of the deflators. The results of this analysis are given in Table D.

Percentage increase in the volume of expenditure on transport and vehicles

TABLE D

	1963 to 1970	1969 to 1970
1970 revalued using a chain-linked deflator	+38·8	+4·9
1969 and 1970 revalued at 1963 prices using a base-weighted deflator ..	+36·3	+4·6
1969 and 1970 revalued at 1963 prices using a current-weighted deflator..	+39·4	+4·8
1969 revalued at 1970 prices using a current-weighted (1969) deflator..	..	+4·8
1970 revalued at 1969 prices using a current-weighted (1970) deflator ..	..	+5·1

Here the range of outcomes is again relatively small. The use of a base-weighted deflator appears to lead to some downward bias in the results. The use of a chain-linked deflator appears to lead to results closer to those using the theoretically preferable current-weighted deflator. There is certainly nothing here to suggest that the use of a chain-linked price index as a deflator may lead to perverse results.

Public authorities' current expenditure on goods and services

Table E shows the growth in volume, for the total of public authorities' current expenditure on goods and services, calculated on the same three alternative bases as for consumers' expenditure in Table A.

Percentage increases between 1963 and 1970 in public authorities' current expenditure on goods and services at constant prices

TABLE E

(1) Measured at 1963 prices ..	15·2
(2) As published	13·9
(3) Measured at 1970 prices ..	13·6

Again, the differences are fairly small. The closeness of the changes shown in lines (2) and (3) reflects the fact that the published figures were recalculated at 1970 prices at a considerable level of disaggregation.

The effects of using base-weighted deflators instead of current-weighted deflators were examined above for certain categories of consumers' expenditure. For public authorities' current expenditure on goods and services an attempt has been made to assess the effects over the total field of expenditure; this might appear to be a more comprehensive analysis than that given in Table B but a word or two of qualification is in order. It was mentioned in the introduction to this article that the analysis could be conducted only within the framework of the system of estimation followed in practice. The fact, therefore, that not a great deal is known about the commodity composition of local authorities' current expenditure on goods and services either in 1963 or 1970 means that the use of base-year or current-year weights when compiling deflators may be of little practical significance. Indeed, it is even possible that for some categories of expenditure apparent changes in their commodity composition between 1963 and 1970 might simply reflect an increase in knowledge. However, if such 'changes' were extreme this would suggest that, in the absence of firm information, the assumptions which had been made in respect of 1963 were in error and these should be revised; thus sharp changes in commodity composition would be identified only in the rare case where reliable information exists for both years.

A second point to be noted is that the available price indicators for goods rarely relate to types of commodity purchased by public authorities. A wholesale price index for wooden furniture may be available, for example, but this is weighted in accordance with the importance of different items purchased by businesses rather than public authorities. A true reweighting of the volume estimates for public authorities would involve the use of data which we do not in fact possess. However, provided the changes in prices of individual items within a commodity group (such as wooden furniture) do not differ greatly the use of inappropriate weights will not generally lead to very different results.

Table F compares the effects of using base-weighted deflators and current-weighted deflators on the estimated volume changes between 1963 and 1970, and between 1969 and 1970.

Percentage increases in the volume of public authorities' current expenditure on goods and services

TABLE F

1963 to 1970

Expenditure in 1970 revalued at 1963 prices using:

Base-weighted deflators	14·7
Current-weighted deflators ..	15·2

1969 to 1970

Expenditure in 1969 and 1970 revalued at 1963 prices using:

Base-weighted deflators	1·4
Current-weighted deflators ..	1·3

For the change between 1963 and 1970 the effect observed is the same as that identified for consumers' expenditure, a slower rate of growth resulting from the use of base-weighted deflators. The effect over the seven-year period is relatively small and the estimated change using base-weighted deflators lies within the range of volume changes as measured at 1963 or 1970 prices given in Table E. The effect on measurement of the change between 1969 and 1970 is perverse in that the use of base-weighted deflators results in a slightly higher volume increase than the use of current-weighted deflators. The difference seems sufficiently small to suggest that, subject to the qualifications mentioned above, the use of base-weighted deflators does not lead to a serious bias in the estimates.

Gross domestic fixed capital formation

With the exception of the transfer costs of land and buildings, all the estimates of gross domestic fixed capital formation at constant prices are derived by dividing current price values with base-weighted deflators. The calculations are carried out at a considerable degree of disaggregation with over 150 separate categories of expenditure revalued by 41 different deflators.

Table B gives figures for twelve categories of retail sales calculated on a number of alternative bases. The categories covered represent about 20 per cent of total consumers' expenditure and perhaps one-half of the categories where volume is measured by deflated expenditure. For each of the categories shown, though not for the total, the volume change between 1963 and 1970 is identical in columns (1) and (4), where the deflators are weighted according to the pattern of expenditure within each category in 1963. The volume changes are also identical in columns (2) and (3) where the weighting system reflects the pattern of expenditure within each category in 1970. For each category the effect of using a base-weighted deflator is to lead to an estimated volume change equal to that which would be obtained if the volume change were measured in terms of the relative prices of the current year. Thus, when aggregated over all twelve categories, column (1) gives the volume change using 1970 relative prices within categories, but 1963 relative prices between categories, and *vice-versa* for column (3). The volume changes given in column (2) and (4) reflect the same set of relative prices within and between categories, 1963 and 1970 respectively.

Percentage change between 1963 and 1970 in the volume of consumers' expenditure on selected categories of retail sales

TABLE B

	Expenditure in 1970 revalued at 1963 prices		Expenditure in 1963 revalued at 1970 prices	
	Using base-weighted deflator(1) (1)	Using current-weighted deflator(1) (2)	Using base-weighted deflator(1) (3)	Using current-weighted deflator(1) (4)
Footwear ..	+13·3	+13·7	+13·7	+13·3
Men's wear ..	+18·0	+18·0	+18·0	+18·0
Women's wear ..	+21·7	+22·2	+22·2	+21·7
Furniture and floor coverings	+8·2	+8·9	+8·9	+8·2
Radio and electrical ..	+14·1	+16·4	+16·4	+14·1
Household textiles	+18·4	+18·1	+18·1	+18·4
Hardware ..	+40·2	+40·5	+40·5	+40·2
Chemist's goods ..	+16·6	+16·8	+16·8	+16·6
Miscellaneous recreational goods	+40·8	+40·8	+40·8	+40·8
Other goods ..	+0·8	+2·7	+2·7	+0·8
Radio and TV rental	+60·8	+60·8	+60·8	+60·8
Radio and TV relay	+64·0	+64·0	+64·0	+64·0
Total	+19·5	+20·1	+19·7	+19·1

(1) 'Base year' means the year at the relative prices of which the calculations are made (that is, 1963 in columns (1) and (2), and 1970 in columns (3) and (4)); 'current year' means any year with which the base year is compared (1970 in columns (1) and (2), 1963 in columns (3) and (4)).

On the basis of the analysis of these particular categories we might tentatively conclude that, given the probable margins of error of the constant price estimates—which as already mentioned may stem, for example, from the failure to deal adequately with quality changes or obtain a sufficiently representative set of price indicators, the use of base-weighted deflators rather than current-weighted deflators appears to have very little effect on the estimated volume change over this seven-year period. It should be noted that one important reason for this is, of course, that the calculations are carried out at a fair degree of disaggregation. If deflation were carried out at a higher level of aggregation the need for current-weighted deflators would assume greater importance.

The next question to be examined was how far the use of base-weighted deflators affected the estimation of volume changes between years other than the base year. Table C shows the estimated volume changes between 1969 and 1970 for the sum of the twelve categories given in Table B, using a variety of weighting systems for the deflators.

Percentage change between 1969 and 1970 in the volume of consumers' expenditure on twelve categories of retail sales(1)

TABLE C

(1) Expenditure in 1969 and 1970 revalued at 1963 prices using base-weighted (1963) deflators	+2·8
(2) Expenditure in 1969 and 1970 revalued at 1963 prices using current-weighted (1969 and 1970) deflators ..	+3·2
(3) Expenditure in 1969 revalued at 1970 prices using current-weighted (1969) deflators	+2·9
(4) Expenditure in 1970 revalued at 1969 prices using current-weighted (1970) deflators	+3·0

(1) The formula for each of the deflators used to obtain the estimates compared are as follows:

(1) $\dfrac{\Sigma p_{63}q_{63}\dfrac{p_{69}}{p_{63}}}{\Sigma p_{63}q_{63}}$ and $\dfrac{\Sigma p_{63}q_{63}\dfrac{p_{70}}{p_{63}}}{\Sigma p_{63}q_{63}}$

(2) $\dfrac{\Sigma p_{69}q_{69}}{\Sigma p_{69}q_{69}\dfrac{p_{63}}{p_{69}}}$ and $\dfrac{\Sigma p_{70}q_{70}}{\Sigma p_{70}q_{70}\dfrac{p_{63}}{p_{70}}}$

(3) $\dfrac{\Sigma p_{69}q_{69}}{\Sigma p_{69}q_{69}\dfrac{p_{70}}{p_{69}}}$

(4) $\dfrac{\Sigma p_{70}q_{70}}{\Sigma p_{70}q_{70}\dfrac{p_{69}}{p_{70}}}$

Again, the differences are relatively small. One interesting point which emerges from the analysis, however, is that a result of using base-weighted deflators may be to lead to an estimated volume change which, though biased, is closer to that estimated at the relative prices of a more recent year than the volume change estimated at the relative prices of some distant year, in this case 1963 (that is, the change shown in line (1) is closer than that given in line (2) to those in lines (3) and (4)).

The final question examined in relation to the consumers' expenditure estimates was the extent to which the calculations might be affected by the use of chain indices for deflation. For this purpose it was decided to examine the effects of using different types of deflator for the revaluation of expenditure on transport and vehicles, the coverage of this category to be defined as for the general index of retail prices (RPI) in order that the chain-linked component of the RPI could be used as one of the deflators. The results of this analysis are given in Table D.

Percentage increase in the volume of expenditure on transport and vehicles

TABLE D

	1963 to 1970	1969 to 1970
1970 revalued using a chain-linked deflator	+38·8	+4·9
1969 and 1970 revalued at 1963 prices using a base-weighted deflator ..	+36·3	+4·6
1969 and 1970 revalued at 1963 prices using a current-weighted deflator..	+39·4	+4·8
1969 revalued at 1970 prices using a current-weighted (1969) deflator..	..	+4·8
1970 revalued at 1969 prices using a current-weighted (1970) deflator ..	..	+5·1

Here the range of outcomes is again relatively small. The use of a base-weighted deflator appears to lead to some downward bias in the results. The use of a chain-linked deflator appears to lead to results closer to those using the theoretically preferable current-weighted deflator. There is certainly nothing here to suggest that the use of a chain-linked price index as a deflator may lead to perverse results.

Public authorities' current expenditure on goods and services

Table E shows the growth in volume, for the total of public authorities' current expenditure on goods and services, calculated on the same three alternative bases as for consumers' expenditure in Table A.

Percentage increases between 1963 and 1970 in public authorities' current expenditure on goods and services at constant prices

TABLE E

(1) Measured at 1963 prices ..	15·2
(2) As published	13·9
(3) Measured at 1970 prices ..	13·6

Again, the differences are fairly small. The closeness of the changes shown in lines (2) and (3) reflects the fact that the published figures were recalculated at 1970 prices at a considerable level of disaggregation.

The effects of using base-weighted deflators instead of current-weighted deflators were examined above for certain categories of consumers' expenditure. For public authorities' current expenditure on goods and services an attempt has been made to assess the effects over the total field of expenditure; this might appear to be a more comprehensive analysis than that given in Table B but a word or two of qualification is in order. It was mentioned in the introduction to this article that the analysis could be conducted only within the framework of the system of estimation followed in practice. The fact, therefore, that not a great deal is known about the commodity composition of local authorities' current expenditure on goods and services either in 1963 or 1970 means that the use of base-year or current-year weights when compiling deflators may be of little practical significance. Indeed, it is even possible that for some categories of expenditure apparent changes in their commodity composition between 1963 and 1970 might simply reflect an increase in knowledge. However, if such 'changes' were extreme this would suggest that, in the absence of firm information, the assumptions which had been made in respect of 1963 were in error and these should be revised; thus sharp changes in commodity composition would be identified only in the rare case where reliable information exists for both years.

A second point to be noted is that the available price indicators for goods rarely relate to types of commodity purchased by public authorities. A wholesale price index for wooden furniture may be available, for example, but this is weighted in accordance with the importance of different items purchased by businesses rather than public authorities. A true reweighting of the volume estimates for public authorities would involve the use of data which we do not in fact possess. However, provided the changes in prices of individual items within a commodity group (such as wooden furniture) do not differ greatly the use of inappropriate weights will not generally lead to very different results.

Table F compares the effects of using base-weighted deflators and current-weighted deflators on the estimated volume changes between 1963 and 1970, and between 1969 and 1970.

Percentage increases in the volume of public authorities' current expenditure on goods and services

TABLE F

1963 to 1970

Expenditure in 1970 revalued at 1963 prices using:

Base-weighted deflators	14·7
Current-weighted deflators ..	15·2

1969 to 1970

Expenditure in 1969 and 1970 revalued at 1963 prices using:

Base-weighted deflators	1·4
Current-weighted deflators ..	1·3

For the change between 1963 and 1970 the effect observed is the same as that identified for consumers' expenditure, a slower rate of growth resulting from the use of base-weighted deflators. The effect over the seven-year period is relatively small and the estimated change using base-weighted deflators lies within the range of volume changes as measured at 1963 or 1970 prices given in Table E. The effect on measurement of the change between 1969 and 1970 is perverse in that the use of base-weighted deflators results in a slightly higher volume increase than the use of current-weighted deflators. The difference seems sufficiently small to suggest that, subject to the qualifications mentioned above, the use of base-weighted deflators does not lead to a serious bias in the estimates.

Gross domestic fixed capital formation

With the exception of the transfer costs of land and buildings, all the estimates of gross domestic fixed capital formation at constant prices are derived by dividing current price values with base-weighted deflators. The calculations are carried out at a considerable degree of disaggregation with over 150 separate categories of expenditure revalued by 41 different deflators.

As already explained in the section on consumers' expenditure, the effect of using a base-weighted deflator is that the volume change for each category as measured by constant price estimates between the base year and any other year is equivalent to that expressed at the prices of the latter year. In fact the Blue Book constant price estimates for gross domestic fixed capital formation are only calculated with the use of rebased deflators for the years following the base year; for the years back to the previous base year the volume changes shown by the old estimates are merely scaled to the price level of the new base year. In normal circumstances, therefore, the change in the volume of gross domestic fixed capital formation between 1963 and 1970 shown by the published 1970 price figures would be equivalent to calculations at the relative prices of 1970, since within categories the use of 1963-weighted deflators would yield volume changes at the relative prices of 1970 and scaling up each category to the 1970 price level would result in 1970 relative prices between categories.

However, there was a departure from the principle normally followed when rebasing on 1970, a year which did not coincide with a full census of production (from the details of which the pattern of expenditure determining the weights for the deflators is estimated). The weights used for the 1970-based deflators were actually calculated from the 1968 census and had to be used as proxies for 1970 weights. Deflators using these weights but scaled to 1970=100 were used to produce constant 1970 price estimates from 1968 onwards and the 1963-based volume estimates were scaled up only for the period from 1963 to 1968. The result is that a comparison of gross domestic fixed capital formation between 1963 and 1970, using the constant price figures in the 1973 Blue Book, reflects the volume change between 1963 and 1968 calculated at 1968 prices together with the volume change between 1968 and 1970 calculated at 1970 prices.

The volume changes between 1963 and 1970 have been fully recalculated at 1963 and 1970 prices using true current-weighted deflators covering the whole period (1968 weights were used as proxies for 1970 weights in the calculations at 1963 prices). These changes are compared with those derived from the published figures with mixed weights in Table G.

Percentage increases between 1963 and 1970 in gross domestic fixed capital formation at constant prices, analysed by industry group

TABLE G

	Measured at 1963 prices (1)	As published (2)	Measured at 1970 prices (3)
Agriculture, forestry and fishing	8·2	8·9	7·7
Mining and quarrying	21·2	17·3	19·3
Manufacturing	51·5	53·0	52·6
Construction	29·4	32·0	31·9
Gas, electricity and water	—7·8	—9·3	—10·3
Transport and communication	89·7	83·1	85·6
Distributive trades and other private services	50·5	48·8	49·8
Dwellings	26·1	29·7	25·4
Social and public services	81·2	86·5	80·1
Transfer costs	15·5	15·5	15·5
Total	42·8	43·1	42·0

It is to be expected that where substitution takes place in the context of changing relative prices the increase in volume is less when measured at the prices of a later than when measured at those of an earlier period. This is borne out by the figures in columns (1) and (3) of Table G except for the manufacturing and construction industries. In these two cases the opposite is observed, suggesting that over the period concerned changes in the relative quantities of different capital goods were positively correlated with changes in relative prices. This may have been caused by a need to invest in certain goods for technological reasons which would admit no substitutes. The mixed-price volume changes in column (2) are influenced by the relative changes in prices between 1968 and 1970. In the cases of mining and quarrying, transport and communication, and distributive trades and other private services, the volume change measured in this way is lower than that at either 1963 or 1970 prices; in all other cases it is higher than at either of these prices.

An examination of the effects on the estimated volume change between 1969 and 1970 of the use of the base-weighted or current-weighted deflators showed virtually no differences between the two sets of results obtained. There was in fact no difference for gross domestic fixed capital formation as a whole, and very little difference for any of the main industry groups.

Value of physical increase in stocks and work in progress

The testing of the sensitivity of these estimates to different weighting systems has not been attempted. There are several reasons for this. First, in analysing the volume changes in gross domestic product at factor cost between 1963 and 1970 the contribution of changes in stocks is insignificant. Secondly, the complexity of the calculations of the physical change from figures of book values (see *National Accounts Statistics: Sources and Methods* (HMSO 1968)—Chapter XIII) is such that the resources cost of making the alternative calculations would have been large. And finally the estimates of physical stock changes at constant prices are subject to such wide margins of error for other reasons that the work seemed to be of little, if any, potential value.

Exports of goods and services; imports of goods and services

There were significant practical difficulties in undertaking for exports and imports the kind of analysis carried out by the categories of expenditure described above. One major difficulty was the change in trade classification introduced in 1970 which makes comparisons with earlier periods subject to additional sources of error. Also, as in the case of stock changes, it was thought that the resources which might be devoted to the analysis should be determined in the light of the usefulness of the results likely to be obtained. Work was concentrated, therefore, on the particular issue of the sensitivity of the estimates for changes in the volume of exports and imports of goods to the use of a current-weighted deflator in place of a base-weighted deflator.

The use of deflated values, as distinct from the use of direct volume indicators, to measure changes in the volume of exports and imports increased over the period 1963 to 1970. For exports about 43 per cent of the values were estimated at constant prices by deflation in 1963

rising to 54 per cent in 1970. The corresponding percentages for imports were 28 per cent and 38 per cent. In Table H are given estimates of the volume changes in exports and imports of goods (*Overseas Trade Statistics* basis) between 1963 and 1970 using (a) a base-weighted (that is, 1961 'unit value' index) for deflation, and (b) a current weighted (that is, 1970 'average value' index).

Percentage increase between 1963 and 1970 in volume of exports and import of goods (OTS basis) at 1961 prices

TABLE H

	Using base-weighted (i.e. 'unit value' index)	Using current-weighted (i.e. 'average value' index)
Exports	44·0	48·1
Imports	45·7	47·5

Given that a larger proportion of export volume is estimated by deflating values, the effects of using current-weighted deflators appear to be broadly similar for exports and imports.

Perhaps the most important difference between the data availability and methods of estimation used for external trade and elsewhere is the extensive range of detailed figures available for the former. This means that the changing commodity composition of exports and imports can more easily be taken into account than in areas such as gross domestic fixed capital formation. We might conclude, therefore, that had we been able to carry out our calculations for other areas of the accounts in greater detail we might well have found larger effects stemming from the use of base or current-weighted deflators. Once again, however, a word or two of caution would seem to be necessary. It should be understood that, for external trade, the base-weighted or current-weighted deflator used is not derived from price data but from unit values derived from data on values and quantities. Now, although the external trade statistics provide a wealth of detail on individual types of good, it is precisely those areas where the goods covered are relatively heterogeneous that the deflation of values (rather than use of a volume indicator) is adopted. The deflator generally used is that implied by the value and quantity data for goods of a similar kind. Thus, whether base-weighted or current-weighted, the components of this deflator will not *necessarily* be appropriate to the range of goods whose values are to be deflated.

Prior to the rebasing of the external trade unit value and volume index numbers on 1970, for those headings where deflation of values was used to measure volume the deflator for each grouping was base-weighted. The effect of this was to yield a current-weighted volume index for these headings in contrast to the base-weighted volume indices for headings where volume indicators are used. In the series based on 1970 current-weighted deflators have been used, thus ensuring that the volume indices are now effectively base-weighted throughout. The change in methodology was a factor contributing to the revisions to the estimated volume changes in exports from 1970 onwards noted on page xii of the October 1973 issue of *Economic Trends*.

Adjustment to factor cost

The adjustment to factor cost, not surprisingly, shows significant sensitivity to the set of prices, rates of tax or subsidy which underlie it. Table I sets out some of the relevant figures.

Percentage changes between 1963 and 1970

TABLE I

	1963 prices	1970 prices
Taxes	+22·0	+16·0
Subsidies	—11·2	+9·6
Taxes *less* subsidies ..	+27·4	+16·8

The differences observed reflect not only changes in rates of tax or subsidy but the introduction or withdrawal of a particular tax or subsidy. For example, a major contributory factor leading to the smaller volume increase in taxes when expressed at 1970 prices is the introduction of selective employment tax which did not exist in 1963. If selective employment tax were excluded from the calculations the estimated volume increase between 1963 and 1970 would be reduced only to 19·3 per cent when expressed at 1970 prices compared with the estimated increase of 16·0 per cent when all taxes existing in 1970 are included. The inclusion of employment premiums in the volume calculations for subsidies has had the effect of reducing the difference between the volume movements calculated at the two years' prices. If employment premiums were excluded from the calculations the volume increase would be 12·1 per cent when expressed at 1970 prices compared with the increase of 9·6 per cent when all subsidies existing in 1970 are included. Thus the inclusion of both selective employment tax and employment premiums has had the effect of reducing the estimated volume increases in taxes and subsidies between 1963 and 1970.

Gross domestic product

The significance of the differences between the factor cost adjustment at 1963 prices and 1970 prices is perhaps seen in better perspective when the volume changes in gross domestic product are compared at constant market prices and at constant factor cost. These figures are given in Table J.

Percentage increase in gross domestic product between 1963 and 1970

TABLE J

	1963 market prices and factor cost	As published	1970 market prices and factor cost
Gross domestic product at market prices ..	21·5	20·1	19·5
Gross domestic product at factor cost ..	20·7	20·7	19·9

Given the margins of error to which estimates of the increase in real gross domestic product over a seven-year period are likely to be subject, the effects of using 1963 market prices or factor cost compared with 1970 market prices or factor cost are not particularly large. The change in the structure and rates of taxes and subsidies has, however, been sufficiently great to reverse the differential effect of measuring gross domestic product at market prices or factor cost. At 1963 prices the growth at market prices is estimated to be slightly greater than at factor cost, whilst the reverse is true at 1970 prices.

Private sector housing land prices in England and Wales

ANDREW W. EVANS, *Statistician, Department of the Environment*

I. INTRODUCTION

This article describes new data on housing land prices in England and Wales, and new indices and weighted average prices. The new work follows an increase, from 1969, in the information on land prices supplied to the Department of the Environment by the Valuation Office of the Inland Revenue, permitting the calculation of more detailed and more reliable results than previously. The Department's previous indices covering periods from 1963 to 1972 were published in *Housing and Construction Statistics,* and were described in *Economic Trends* No. 208 (1971). The new results replace the former indices from 1969; the principal index series for England and Wales appeared for the first time in *Housing and Construction Statistics* No. 6 (November 1973).

Following this introduction, the article continues as follows. Section II describes the available data. Section III presents some simple descriptive statistics calculated from the data; this provides background material for the discussion in Section IV on the methods by which the new indices and weighted average prices are estimated. Section V presents the results of the calculations of price indices and weighted average prices. Appendix I presents some algebraic or theoretical statistical results which are included in order to amplify, justify, or make more precise certain statements in the main part of the article. Tables 1 to 8 appear in Appendix II; Tables 9 to 11 appear in Appendix III; tables labelled by letters appear within the text. The principal new results are presented in Tables E to I, in Section V.

II. THE DATA

Information on housing land transactions in England and Wales is supplied to the Department by the Valuation Office of the Board of Inland Revenue, to whom all property transactions are reported. District Valuers make a return for each half-year, listing transactions in land with planning permission for housing sold to private purchasers. The principal details provided about each transaction are the following:

(i) The completion date of the sale.
(ii) The local authority area in which the land lies.
(iii) The price paid.
(iv) The area of the site in acres or hectares.
(v) The number of dwellings permitted. (In some cases this is estimated by the District Valuer.)

Up till 1968 the returns covered transactions in certain areas of the country only, the so-called 'pressure areas'; these are a set of local authority areas where demand for housing land has been judged to be high. From 1969 the returns have covered all transactions involving sites of 4 dwelling plots or more, whether or not they are in pressure areas, but smaller sites are still covered only in pressure areas. A further change instituted at the same time was the inclusion of the area of each site in the data, so that it became possible to calculate the densities and prices per acre.

The analysis described in this article and future published statistics will be based only on the sites of 4 plots or more. Small sites, especially single-plot sites, are of a different nature from large sites: they are more often within built-up areas, and they form a different market as their purchasers include private persons buying for their own use. They have more variable and generally higher prices per plot and per acre than large sites of comparable density; the price data given in this article should therefore not be taken to apply to small sites. The small sites are excluded because it was felt that the cost of reporting and analysing them all would not be justified; they are numerous, but they account for a small proportion of the total land sold, and if they were included they would have little effect on an overall price index, even if their price trends were different from those of large sites. In the years 1969 to 1972, the sites of fewer than 4 plots accounted for 61 per cent of the transactions reported in pressure areas, but only 12 per cent of the acreage, 6 per cent of the dwelling plots, and 12 per cent of the total price paid. The returns for the small sites in the pressure areas have been retained partly because the old index made use of them and partly to provide a check on their number and importance relative to the large sites, but they are excluded from the main analysis in order to leave a uniform coverage of sites over the whole country; this makes it possible to drop the distinction between pressure and non-pressure areas and enables regional price comparisons to be made with fewer qualifications than would otherwise be necessary.

Most of the transactions in sites of 4 or more plots are included in the analysis. There are three groups of exceptions. The main group of exceptions consists of those transactions about which the information reported is incomplete. The second group consists of a few transactions reported exceptionally late after the dates of completion of sale. These two groups together account for some 10 to 15 per cent of the transactions reported. The third group consists of certain transactions in sites where the housing density is exceptionally high, which are too unrepresentative to be used in the calculation of price indices. The density above which sites are excluded varies from place to place. It is 60 dwellings per acre in London, 30 in the rest of the South East and in most of the conurbations, and 18 elsewhere. Further details are given in Section IV. These sites account for about 3 per cent of the transactions reported; their exclusion is unlikely to have biased the price indices which are estimated at constant average density, but it

will have biased downwards the descriptive statistics on density mentioned in Section III.

Transactions are allocated to the time period in which they are reported to the Valuation Office, irrespective of completion date, although as mentioned in the previous paragraph, a few transactions reported long after completion are discarded altogether. The data on completion dates have been used to calculate the average interval between completion and reporting, which has been found to be approximately constant at about six weeks; thus the average completion date of the transactions reported in any period in this article is about six weeks before the mid-point of the period. The average interval between the dates at which transaction prices are agreed and the completion of sales is unknown; if it were similar to that for houses, believed to be about two or three months, then the average date at which prices were agreed would be about four months before the mid-point of the period in which the transactions are reported.

III. Descriptive statistics

Introduction

In this section we explore the data by considering some of the basic descriptive statistics calculated from them, not making any inferences about price trends at this stage. Inferences will be considered in Sections IV and V.

Statistics calculated

The formulae by which most of the statistics mentioned in this section are calculated are given in Section 1 of Appendix I.

In each transaction the price can be divided by the number of dwelling plots to give the *transaction price per plot*. The normal way of combining transaction prices per plot from different transactions is with weights proportional to the number of plots. On the assumption that all the plots within each transaction have the same price (the transaction price per plot), this weighting gives statistics of the prices of individual plots; these statistics are given by region for each year 1969—1972 in part (i) of Tables 1 to 4. The most important is the *simple average price per plot*, which is the total of the prices paid divided by the total number of plots. Other statistics shown are the median price per plot, the coefficient of variation of prices per plot and the percentages of plots with prices in various ranges. The number and percentage of plots in each region are also given.

It is also possible to combine transaction prices per plot with equal weights, and statistics so calculated are given in part (ii) of Tables 1 to 4. These statistics are less useful than the previous set because they do not relate to prices per plot as normally understood; they describe, rather, characteristics of transactions. Two reasons for giving them are: first, the differences between the simple average price and the average of the transaction prices provide helpful background information for the discussion in Section IV on the method of estimating price indices. Secondly, it has been common for different writers on land prices to calculate different statistics; for example, the *Estates Gazette* (1973) and McAuslan (1973) have given medians of transaction prices per plot. Different statistics are often compared with each other even though they are not truly comparable; the presentation in this article of different statistics calculated from the same data emphasises their differences and the need to compare only similar statistics. At the same time, it enables comparisons to be made with other writers' figures, whatever statistics they may have used.

Statistics of prices per acre, calculated by combining transaction prices per acre with weights proportional to acreage, are given in part (i) of Tables 5 to 8; these include the *simple average price per acre*, the total of prices divided by the total acreage. Statistics of transaction prices per acre are given in part (ii) of Tables 5 to 8. Tables 5 to 8 follow a similar format to Tables 1 to 4, except that the number and percentage of transactions in each region is not shown in part (ii) of Tables 5 to 8, as these would repeat the figures shown in part (ii) of Tables 1 to 4.

If it were possible to include transactions of fewer than 4 plots in the analysis, it is likely that the figures in part (ii) of Tables 1 to 8, would all change considerably, as there are many of these small transactions and they tend to have extreme transaction prices. On the other hand, the effect of the small transactions on the figures in part (i) of Tables 1 to 8 would probably be slight, since the small sites account for relatively few plots and acres.

Numbers of transactions, plots and acres

The total number of transactions, plots and acres in England and Wales analysed in each of the years 1969

Transactions, plots and acres reported; private dwellings started

England and Wales 1969 to 1972

TABLE A

	1969	1970	1971	1972	1969 to 1972
Transactions reported					
Number of transactions	2,191	1,969	2,581	4,054	10,795
Number of dwelling plots	79,553	70,943	92,653	164,384	407,533
Number of acres	8,786	7,679	10,033	17,669	44,167
Average number of plots per transaction	36·3	36·0	35·9	40·5	37·8
Average acreage per transaction	4·01	3·90	3·89	4·36	4·09
Simple average density (plots per acre)	9·05	9·24	9·23	9·30	9·23
Number of private sector dwellings started	158,195	156,930	195,426	213,794	724,345
Plots reported as percentage of private sector dwelling starts	*50·3*	*45·2*	*47·4*	*76·9*	*56·3*

to 1972 are drawn together from Tables 1 to 8 and shown in Table A, together with the numbers of private dwellings started and certain derived statistics.

It can be seen from Table A that the amount of land reported has varied substantially from year to year; more than twice as much land was reported in 1972 as in 1970. The average number of plots per transaction has been in the range 35 to 41 in each year, and the average number of acres per transaction in the range 3·8 to 4·4. The ratio of the total number of plots to the total number of acres, the *simple average density*, was 9·05 in 1969, 9·24 in 1970, 9·23 in 1971 and 9·30 in 1972. The impression given by these figures is that densities have been rising slightly, but they are not conclusive, and two notes of caution are necessary. First, further investigation of the data shows that simple average densities are more variable than the run of annual figures suggests; for example, the half-yearly figures in chronological order from the first half of 1969 to the first half of 1973 were 8·79, 9·36, 9·33, 9·16, 9·51, 9·03, 9·13, 9·44 and 9·48. Secondly, transactions with very high densities are excluded from the analysis (see Section II); a cursory analysis of the yearly data indicates that their inclusion would raise the simple average densities by the order of 2 per cent, but it would not greatly alter the apparent trend.

Table A shows that the number of plots reported as a proportion of private dwellings started in the same period was about 50 per cent in 1969, 45 per cent in 1970, 47 per cent in 1971, 77 per cent in 1972 and 56 per cent in all four years together. It is clear that the number of plots reported falls far short of the number of plots built on; this was also found in the Department's previous analysis of pressure area data over the period 1963 to 1969 (Department of the Environment, 1971). Reasons for the shortfall are that, first, sites of fewer than 4 plots and certain other sites are excluded from the analysis, and, secondly, the purchase of land with planning permission is by no means the only way by which house builders acquire land. They may buy land without planning permission and obtain it subsequently or they may successfully apply to have planning permissions altered so that they can build more dwellings than were specified originally. A counter-effect, tending to raise the number of plots reported relative to the number of houses built, is that if a site is sold more than once with planning permission, it will be reported more than once. In any case, there is no reason why the number of plots acquired by builders in any period should be equal to the number of dwellings built, because builders may change the level of their stocks of land.

Table B gives regional information derived from the numbers of transactions, plots and acres, and of private dwellings started in the four years 1969 to 1972 combined. The table shows, not surprisingly, that the Greater London Area differs markedly from the other regions in the table, having an average number of plots per transaction of only about 18, compared with 38 in England and Wales, an average acreage per transaction of 0·9 compared with 4·1, and a simple average density of nearly 20 compared with the England and Wales figure of 9·2. No other region has such greatly different characteristics as London.

Regional simple average densities (excluding London) over the four years vary from 8·1 in East Anglia to 10·0 in the North West, but similar notes of caution are necessary about these densities as were made about those of England and Wales. First, densities tend to be variable, as may be verified by calculating them for regions for individual years using the data in Tables 1 to 8. Secondly, sites of very high density are excluded from the analysis and because sites of higher density are admitted to the analysis in London, the Outer Metropolitan Area (OMA), the Outer South East (OSE) and most of the conurbations, than in the rest of England and Wales (see Section II), the regional simple average densities in Table B are not strictly comparable with each other.

Transactions, plots and acres reported; private dwellings started

England and Wales by region 1969 to 1972 combined

TABLE B

	In transactions reported			Number of private dwellings started	Average number of plots per transaction	Average acreage per transaction	Simple average density (plots÷acres)	Plots as a percentage of private dwellings started
	Number of transactions	Number of plots	Number of acres					
	Percentage of England and Wales							
North	4·4	7·6	7·6	6·0	65·1	7·08	9·19	71·7
Yorkshire and Humberside	11·0	10·0	9·8	8·9	34·3	3·65	9·40	63·6
East Midlands	8·1	7·4	7·9	9·0	34·5	4·00	8·62	46·3
East Anglia	6·4	6·7	7·6	6·5	39·4	4·84	8·14	58·5
Greater London Area	8·1	3·8	1·8	4·8	17·7	0·90	19·79	44·2
Outer Metropolitan Area	12·1	9·1	9·6	12·6	28·4	3·22	8·82	40·8
Outer South East	13·4	14·3	14·7	12·9	40·2	4·50	8·92	62·0
South East (excluding Greater London Area)	25·5	23·4	24·3	25·6	34·6	3·89	8·88	51·5
South West	10·3	10·4	11·2	11·5	38·3	4·48	8·56	50·8
West Midlands	8·4	7·5	7·3	9·4	33·6	3·55	9·48	44·9
North West	12·0	15·2	14·0	12·7	47·7	4·78	9·99	67·6
Wales	5·8	8·0	8·4	5·8	52·4	5·96	8·78	77·8
England and Wales	100·0	100·0	100·0	100·0	37·8	4·09	9·23	56·3

Table B shows that the regional ratios of plots reported to private dwellings started over the four years vary from 41 per cent in the Outer Metropolitan Area to 78 per cent in Wales.

Prices

Table C gives five measures of plot prices in England and Wales for each year 1969 to 1972. Four of these are descriptive measures taken from Tables 1 to 4; the fifth is the estimated weighted average price per plot, the principal published series which is defined in Section IV and is given here prematurely for comparison. The four measures taken from Tables 1 to 4 are the simple average price per plot (total price divided by total number of plots), the median price per plot (the price such that half of the plots are cheaper and half more expensive), the average of the transaction prices per plot, and the median of the transaction prices per plot (the price such that half the transaction prices per plot are higher and half are lower). Table D gives the corresponding five measures of acreage prices in England and Wales, four taken from Tables 5 to 8 and the fifth, the estimated weighted average price per acre, given prematurely for comparison.

Tables C and D show that the different measures of prices give greatly differing figures. In each year the largest of the plot price measures, the average of the transaction prices per plot, was about twice the smallest, the median price per plot; the largest of the acreage price measures was between two and three times the smallest. The measures also show widely differing increases between 1969 and 1972, ranging from about 60 per cent to about 110 per cent. Since various price measures give such very different results, it is necessary in land price work to be particularly careful only to make price comparisons of statistics calculated similarly, and when making inferences from land price data, it is important to choose the most suitable statistics for the purpose.

Tables C and D show that in every year the average of the transaction prices per plot was substantially higher than the simple average price per plot and the average of the transaction prices per acre was higher than the simple average price per acre. This arises from a strong tendency for the smaller transactions to have relatively high prices per plot and per acre, which causes all measures of prices per plot and per acre to be higher when transactions are weighted equally, irrespective of their size, than when they are weighted in proportion to size. The effect of this tendency can also be seen in the medians and price distributions, and in the regional statistics. Two factors probably account for the tendency for small sites to be relatively expensive. The first is that small sites generally require less expenditure per dwelling on site works such as roads, drainage and other services than large sites. The second reason is that small sites are likely to be more favourably located than large sites. Small sites are more likely to be within existing built-up areas and large sites to be on the edge of these areas.

Land prices are extremely variable, as the price distributions in Tables 1 to 8 show; coefficients of variation are included in Tables 1 to 8 as measures of their variability relative to the average. The coefficients of variation of prices per plot have ranged between 92 per cent in 1970 and 118 per cent in 1972. Coefficients of variation of prices per acre have been rather higher than those of prices per plot, ranging from 104 per cent in 1970 to 132 per cent in 1972. Regional coefficients of

Comparison of measures of prices per plot

England and Wales

TABLE C

£

	Simple average price per plot	Median price per plot	Average of transaction prices per plot	Median of transaction prices per plot	Weighted average price per plot
1969	752	515	1,063	788	828
1970	847	603	1,204	888	908
1971	930	629	1,417	982	1,030
1972	1,452	939	2,188	1,267	1,727
Percentage increase 1969 to 1972 ..	*93*	*82*	*106*	*61*	*108*

Comparison of measures of prices per acre

England and Wales

TABLE D

£

	Simple average price per acre	Median price per acre	Average of transaction prices per acre	Median of transaction prices per acre	Weighted average price per acre
1969	6,810	4,470	11,860	7,120	7,660
1970	7,840	5,690	13,060	8,280	8,400
1971	8,590	5,750	15,520	8,950	9,530
1972	13,510	8,350	23,730	11,360	15,980
Percentage increase 1969 to 1972 ..	*98*	*87*	*100*	*60*	*108*

variation have generally been lower than national coefficients, reflecting less relative price variability within regions; they are nevertheless large compared, for example, with those of house prices whose national coefficients of variation are typically in the 50 to 60 per cent range, and whose regional coefficients are typically around 45 per cent.

The price distributions were generally skew, there being a small proportion of high priced land, while the majority had below average prices, and this skewness is reflected in the median prices generally being lower than the corresponding average prices.

IV. Price indices and weighted average prices: methods

Introduction

We now consider the problem of constructing land price indices in order to draw correct inferences about price changes over time and differences in prices between regions.

Price indices usually aim to measure changes by comparing the prices at different times of standard collections of articles. In this work, the principle of a price index is used for making inferences about changes in land prices, although a perfect index for housing land prices cannot be calculated because any piece of land is usually sold only once for development and no two pieces of land are identical, so one cannot compare the prices of exactly similar collections of land at different times. The best one can do is to specify groups within which land is as alike as possible and to calculate an index which compares the estimated average price, suitably defined, of a collection of land with standard proportions in each group. The groups into which land is classified are called *cells*. Average prices in which the cells are represented in fixed proportions are called *weighted average prices*.

The weighted average prices and indices given in this article are all estimated at constant average density. The theoretical requirement for such indices is that the mean density in each cell is constant, and this is met in practice by using density as a variable by which transactions are classified into cells. In addition, transactions are also classified by number of plots (in most regions) and by their location in such a way that regional weighted average prices per plot, and price indices, can be estimated which are consistent with the national averages. The classification by all these variables is coarse, in order not to have so many cells that the average number in each is too small.

The argument for calculating the price per plot index at constant average density is strong: because a price index should be based as far as possible on a standard collection of articles in each period, the price per plot index should be based on a collection of land with plots of constant average size. The same argument applies to the price per acre index, although with less force because there is some room for argument about whether two sites differing in the number of houses for which they have planning permission but of equal area and otherwise identical should be treated as identical articles or not. In this work we treat such sites as different and base our weighted average prices per acre on collections of land with constant average numbers of plots per acre, although it is recognised that for some purposes and in some circumstances other weighted average prices per acre might be useful; for example, if densities were rising systematically and an index was needed to measure the value per acre of farming land sold for development, it would be appropriate to calculate an index not based on constant average density. The decision about whether the weighted average price per acre should or should not be at constant average density is not critical at present because the data given in Section III, although not conclusive, do not suggest that over the last four years there has been any substantial systematic change in the average densities in land sold for housing in the private sector, and the two weighted averages would probably differ little. There is unfortunately no comprehensive source of information on private sector housing densities independent of the land price data.

The true average or mean price per acre in a cell is defined as the mean price per transaction divided by the mean number of acres per transaction; the mean price per plot and the mean density are correspondingly defined. These definitions are set out algebraically in Section 2 of Appendix I. The true weighted average price per acre and weighted average price per plot are respectively the mean price per acre and the mean price per plot in the standard collection of land; their ratio is the constant mean density in the collection. The standard collection of land could, in theory, be defined by specifying the proportion of transactions from each cell, or the proportion of acres, or the proportion of plots. In practice the proportion of plots in each cell is specified, because it was decided that the standard collection of land should be similar in composition to that developed for private housing in the period 1969 to 1972, and although no independent information is available on the numbers of sites developed over this period, or on the numbers of acres developed, information is available on the numbers of private dwellings started which are equal to the numbers of plots developed. When the proportion of plots in each cell in the standard collection has been specified, the weighted average price per plot can be expressed as a weighted average of the mean prices per plot in all the cells; this expression forms the basis of the estimates of weighted average prices per plot. Corresponding weighted average prices per acre are estimated afterwards by multiplying the prices per plot by the assumed constant average density. This means that the estimated weighted average prices per acre move exactly in proportion to those per plot, as in theory they should, and the same indices represent the movements of both. Algebraic expressions for the weighted average prices per plot and per acre are given in Section 3 of Appendix I.

Details of the classification of transactions

As mentioned above, transactions are classified by location, site size, and density. On location, land is first classified by Economic Planning Region, with the three sub-divisions of the South East, the Greater London Area, the Outer Metropolitan Area, and the Outer South East, treated as separate regions for this purpose. Some regions are further split into as many as three sub-regions; this is done if the systematic land price variation between different parts of the region is large and if there

are enough transactions to allow it. The complete list of regions and sub-regions is given in Table 9. The sub-regions were chosen to be combinations of the counties which will be created at local government reorganisation on 1 April 1974, so that the system will require only minimal changes when information is supplied by the new local authority areas. Until that time the nearest equivalent combinations of existing local authority areas are being used. A slight problem arises in places where local government reorganisation necessitates a regional boundary change; for example, Bournemouth County Borough is now in Hampshire and the Outer South East, but will be in Dorset after reorganisation and therefore in the South West. In these cases existing authorities have been allocated to their present regions, not to their presumed post-reorganisation regions. It is intended to recalculate past land price figures when the new regions are introduced.

On size of site, transactions outside London are classified into two size bands, 4 to 19 plots, and 20 plots or over. In the Greater London Area, where there are relatively fewer large sites than elsewhere, transactions are not classified by size.

Transactions are classified by density in all regions and sub-regions, but because the distribution of densities tends to differ between regions, the same bands are not used for all. The region with the most untypical density distribution is London, where, as has been seen, the average density is high and sites with high densities occur much more frequently than elsewhere. Other regions or sub-regions where sites with relatively high densities occur frequently are the Outer Metropolitan Area, the Outer South East and the new metropolitan counties. The system for classifying land by density allows for these varying distributions; in all regions and sub-regions there are density bands covering sites of up to 18 plots per acre; in the metropolitan counties, the OMA, the OSE, and London, there is a further band or bands covering sites up to 30 plots per acre; in London there are further bands covering sites up to 60 plots per acre. In all areas, the few sites with densities higher than that covered by the highest band are discarded. An exception to the system is that Tyne and Wear, although a Metropolitan County, is not counted as such because it does not have enough transactions to stand separate from the rest of the North Region. The complete list of site size and density bands is given in Table 10.

The total number of cells used in the calculation of the weighted average prices per plot is 156; the number of regions or sub-regions is 23.

Weights

As mentioned above, the weights with which cells are combined in the calculation of weighted average prices per plot are intended to reflect the composition of housing land developed over the period 1969 to 1972. The weight for each cell is calculated as the product of two factors: one for the region or sub-region, and one representing the importance of the cell's size and density band within the region or sub-region.

The factors for the regions or sub-regions are taken proportional to the number of private dwellings started (that is, the number of plots used) in the region or sub-region over the period 1969 to 1972. These factors are given in Table 9; the regional factors are equal to the figures given in the fourth column of Table B (Section III).

The factors representing the importance of each size and density band within a region or sub-region are taken proportional to the number of plots in transactions reported in the band in the period 1969 to 1972. These factors are not calculated separately for every region and sub-region, but only for the five groups of regions or sub-regions for which the site size and density distributions appeared to be substantially different. The same factors are used for all the regions or sub-regions within each group. The groups are: London, the OMA, the OSE, the Metropolitan Counties (excluding Tyne and Wear), and the rest. The factors are listed in Table 10. The reasons why the factors are calculated for groups rather than for individual regions and sub-regions are that, first, it enables factors to be calculated from more transactions, and secondly, it means that the weighted average prices for the regions or sub-regions within any group have the same site size and density structure, and so are more comparable than if they had different site size and density structures. We take up this point again in the section on regional price indices.

Weights are expressed algebraically in Section 4 of Appendix I.

Mean densities

The multipliers or mean densities by which estimated weighted average prices per acre at constant average density are obtained from those per plot are calculated by suitably combining estimates of the average density in each cell. The average densities in cells of the same size and density band are assumed to be the same in all regions belonging to the same one of the five groups, but different in different groups. They are calculated as the total number of plots reported in the size and density band in all regions or sub-regions of the group in the period 1969 to 1972, divided by the corresponding total number of acres; the calculation is expressed algebraically in Section 5 of Appendix I. The constant multipliers which result from these calculations are listed in Table 11. In cases where a region lies wholly within one group, the multiplier reduces just to the simple average density for the group over the period 1969 to 1972. Thus the multipliers for the South West, East Anglia, the East Midlands, the North Region, and Wales are all equal to the simple average density in the 'rest of England and Wales' group. The multipliers for London, the OMA and the OSE are each the simple average density for these regions, because they each form their own group. The multipliers for the North West, the West Midlands, and Yorkshire and Humberside are each different combinations of the simple average densities in the Metropolitan Counties group and the 'rest of England and Wales' group.

Regional price indices

Weighted average prices per plot for each region are obtained by combining the average prices per plot in the cells making up the region. If the weighted average prices for different periods in any region are divided by the weighted average price for a chosen base period in the region, the resulting indices measure changes over time in the average price per plot of a standard collection

of land, representative—or roughly so— of the region. These are so called *inter-temporal* regional indices, in contrast to *inter-regional* indices which show how prices in one region compare with those in another at a single point in time. There are several different ways of defining inter-regional indices, but they all have one important feature in common, which is that only prices of identical collections of articles are compared. The weighted average prices per plot described in this article are not based on identical collections of land in different regions, as the site size and density structure differs between regions; they cannot therefore be used to calculate correct inter-regional indices. The exceptions to this lack of strict comparability are the weighted average prices for regions wholly within one of the groups for which the weights for the size and density bands are the same; specifically, the weighted average prices per plot for the South West, East Anglia, the East Midlands, the North Region, and Wales are all comparable with each other, at least in theory. A useful general reference on regional price indices is the Report of the Retail Prices Index Advisory Committee *Proposals for Retail Prices Indices for Regions* (HMSO 1971).

Although the weighted average prices per plot do not enable strictly correct inter-regional price indices to be calculated, no attempt is made in this article to provide such indices, because, first, the calculation of correct inter-regional indices would require the calculation of another set of weighted average prices and these would be confusing. Secondly, it can be argued that comparisons between regional weighted average prices per plot based on collections of land representative of each region are more useful for everyday purposes than those based on identical collections, because there cannot be a standard collection of land which would be appropriate in all regions. For example, if the collection included the high density ranges, it would be inappropriate and give difficulties in estimation in the rural regions, but if it excluded them it would be inappropriate in London. Thirdly, the weighted average prices per acre estimated in this work provide generally different inter-regional price comparisons from those per plot; this serves to emphasise that there is no unique way of making inter-regional land price comparisons.

Estimate of the average price per plot in cells

The estimated weighted average prices per plot are combinations of the estimated average prices per plot in cells. The obvious estimate of the true average or mean price per plot in a cell is the simple average price per plot of the transactions in the cell. This estimate was used for the calculation of the Department of the Environment's former indices (Department of the Environment, 1971) and it is also used for the present indices, with some modification in the case of half-yearly indices. However, it is not entirely satisfactory because it is biased, tending to over-estimate the true average price per plot in a cell.

Simple average prices per plot are examples of *ratio estimates*. A reference discussing these estimates is Kendall and Stuart (1968, Chapter 40). The part of the theory that is relevant to this article is set out in Section 4 of Appendix I, in which it is shown that the simple average price per plot has an upward bias as an estimate of the true average price per plot if the smaller sites tend to have relatively high transaction prices per plot. We saw in Section III that this is the case. The amount of the bias is in theory approximately inversely proportional to the number of transactions from which the simple average is calculated, and approximately proportional to the covariance—or strength of the association—between numbers of plots in transactions and transaction prices per plot.

The reader may find it surprising that the simple average price per plot of a group of transactions should be a biased estimate of the true average price per plot. If he is not convinced by Section 4 of Appendix I he may be convinced by looking again at Table C (Section III) which shows that the averages of the transaction prices per plot in England and Wales are consistently well above the simple averages. But a transaction price per plot is just a simple average based on one transaction, and therefore what the table shows is that simple averages based on one transaction tend to be higher than simple averages based on many transactions. Once this is accepted, it is not difficult to accept that simple averages have an upward bias which depends on the number of transactions, and which diminishes to zero as the number becomes large.

The bias is negligible in simple averages calculated over a large number of transactions, such as all those in a year in England and Wales. (This should not be taken to mean that these simple averages are free from bias due to other causes.) However, the bias is not negligible in cell simple averages, which are usually calculated over relatively few transactions. Since the bias in a weighted average is the weighted average of the biases in the individual cells, weighted average prices estimated from simple average prices in cells also have a bias which is not negligible.

The bias in the weighted average prices estimated in this way was most noticeable when those for years in England and Wales were compared with those for half-years. In each year 1969—1972 the average of the two half-yearly weighted average prices per plot (weighted by the number of plots in each half year) turned out to be about 1½ per cent higher than the yearly figure, even though it estimates the same quantity. The reason for this is that the half-yearly figures were calculated from cell simple averages based on only about half as many transactions as the yearly figures, and so they had a greater upward bias. The discrepancies between the half-yearly and yearly figures suggested that, while the bias in weighted average prices per plot estimated from simple averages in cells was not large, it could not be ignored and should be corrected if possible.

The theory of ratio estimates provides a formula by which to estimate the bias in a simple average price; this is given with its derivation in Section 4 of Appendix I. This formula was used to estimate the bias in each cell and the resulting estimates subtracted from the simple average price per plot in each cell to give a corrected estimate of the true average price per plot. Unfortunately the yearly and half-yearly weighted average prices estimated with this correction were still inconsistent and therefore this method of correcting for the bias was abandoned. The reason why the method fails is not known, but it seems likely that land prices are so variable

that the approximations needed to derive the formula are not valid. Instead of estimating the bias in cells, a more direct method is used to correct the bias in the estimated half-yearly weighted average prices relative to the yearly figures; the figures for the two halves of the year are each divided by the ratio of the average of the two half-yearly figures (weighted by number of plots) to the yearly figure. This produces half-yearly estimates for England and Wales exactly consistent with the yearly estimates, but leaves the upward bias in the yearly estimates uncorrected. This is a little unsatisfactory but seems the best course in the absence of a realiable way to correct the yearly estimates. It is reasonable to suppose that the bias is small and that, since the bias in the half-yearly figures relative to the yearly figures has been fairly consistent, the bias in the yearly figures has also been consistent so that the price indices have been little affected by it.

An inconvenience in the method of correcting the estimates of the half-yearly weighted average prices per plot is that the divisor for the half-yearly figures is not known exactly until the end of each year. Therefore a provisional divisor has to be used for the first half of each year; it is intended to use the previous year's divisor, and then to correct the figure for the first half of each year when the full year's data are available.

Standard errors of estimated weighted average prices

The theory of ratio estimates provides an estimate of the approximate standard error of a simple average price per plot. This estimate is given in Section 6 of Appendix I, and its derivation can be found in Kendall and Stuart (1968, Chapter 40). The standard errors obtained using this estimate cannot be regarded as more than rough guides because the validity of the approximations in the estimate is open to doubt when the estimate is used with data as variable as land prices. The standard errors of the estimated weighted average prices are estimated by combining those in the cells according to the usual formula for the standard error of linear combinations of random variables, given in Section 6 of Appendix I. The weights are treated as constants in the estimation of standard errors, because although they depend to some extent on the land price data for 1969 to 1972, it is intended to keep them constant in future calculations. The standard errors of the estimated weighted average prices per acre are obtained by multiplying those of prices per plot by the constants given in Table 11. Their coefficients of variation are the same as those of prices per plot.

Empty cells and single-transaction cells

It occasionally happens that a cell has no transactions or only one transaction in a particular period. If a cell has no transactions its simple average price per plot cannot be calculated and a method is needed for supplying a figure to use in the estimation of weighted average prices. The method by which a figure is supplied is to multiply the simple average price per plot in the same cell in 1972 by the ratio of the estimated weighted average price per plot in the period under consideration based on all cells with at least one transaction to the estimated weighted average price per plot in 1972 based on the same cells. The standard error of the figure supplied in this way is estimated as the standard error of the 1972 figure multiplied by the ratio mentioned above. If a cell has only one transaction in a particular period, the simple average price per plot can be calculated but its standard error cannot be estimated using the usual formula. In these cases the standard error is estimated using the 1972 cell standard error appropriately adjusted. The year 1972 was chosen as the base for all these calculations because it had more transactions than any other year and, having no empty cells or single-transaction cells, it had both simple average prices and estimated standard errors in every cell.

V. Price indices and weighted average prices: results

Results for England and Wales

Table E gives the estimated weighted average prices per plot and per acre at constant average density with their estimated standard errors and coefficients of variation for England and Wales by years and half-years since 1969. The table also gives the weighted average prices expressed in index form with 1970 as the base year.

Table E shows that the estimated weighted average prices per plot and per acre were 10 per cent higher in 1970 than in the previous year, 13 per cent higher in 1971, 68 per cent higher in 1972, and 55 per cent higher in 1973. It also shows that the half-year on half-year rises, which had been small until the first half of 1971, increased for three successive periods to a peak of 52 per cent between the first and second halves of 1972, followed by reduced rises of 30 per cent between the second half of 1972 and the first half of 1973, and 4 per cent between the first and second halves of 1973. In absolute terms, the weighted average price per plot increased from about £820 in the first half of 1969 to about £2,740 in the second half of 1973. The former figure is about 17 per cent of the average price of a new house at the time; the latter figure is about 26 per cent.

Table C (Section III) shows that the estimated weighted average prices per plot for England and Wales have been consistently higher than the simple averages in each year. The main reason is that in the weighted averages the regions are represented in proportion to dwellings started, but in the simple averages they are represented in proportion to the number of plots in the data. Table B (Section III) shows that dwellings started and plots analysed had different regional distributions over the period 1969 to 1972, and that many of the regions with a higher proportion of dwellings started than plots analysed had high land prices (for example, London, the OMA); conversely many regions with a lower proportion of dwellings started had low land prices (for example, Yorkshire and Humberside, Wales). Differing regional representation is similarly the main reason why the weighted average prices per acre for England and Wales have been greater than the simple averages in each year (see Table D, Section III).

Table E shows that the estimated coefficients of variation of the yearly estimated weighted average prices per plot and per acre have been in the range 1·6 to 2·2 per cent since 1969. The estimated coefficients of variation of the half-yearly estimated weighted average prices have been in the range 2·2 to 3·5 per cent and typically around 2½ per cent. If it were unbiased any estimated weighted average price would almost certainly

Weighted average prices per plot and per acre at constant average density, with standard errors and coefficients of variation; index of price per plot or per acre at constant average density

England and Wales 1969 to 1973

TABLE E

	Weighted average price per plot at constant average density			Weighted average price per acre at constant average density		Index of price per plot or per acre at constant average density
	Estimated average	Estimated standard error	Estimated coefficient of variation	Estimated average	Estimated standard error	
	£		Per cent	£		1970 = 100
1969	828	16	*2·0*	7,660	150	91
1970	908	15	*1·6*	8,400	130	100
1971	1,030	16	*1·6*	9,530	150	113
1972	1,727	37	*2·2*	15,980	340	190
1973	2,676	51	*1·9*	24,760	470	295
1969 1st half	820	26	*3·2*	7,590	240	90
2nd half	837	21	*2·6*	7,740	200	92
1970 1st half	877	30	*3·5*	8,110	280	97
2nd half	934	23	*2·4*	8,640	210	103
1971 1st half	970	21	*2·2*	8,970	200	107
2nd half	1,076	26	*2·4*	9,960	240	119
1972 1st half	1,336	34	*2·5*	12,370	310	147
2nd half	2,026	52	*2·6*	18,750	480	223
1973 1st half	2,630	60	*2·3*	24,340	560	290
2nd half	2,741	81	*3·0*	25,340	760	302

Note: The coefficients of variation of the weighted average prices per acre are the same as those of the corresponding prices per plot.

(that is, with 95 per cent probability) lie within two standard errors of the corresponding true weighted average price; therefore the maximum likely errors in the yearly estimates would typically be about 4 per cent, and in the half-yearly estimates 5 per cent. Any uncorrected bias would make these maximum likely errors rather greater.

The coefficients of variation may be used to estimate the maximum likely errors in the index values or in the percentage change between any two periods as follows. The coefficient of variation of an index value or of the ratio of any two weighted average prices is approximately the square root of the sum of the squares of the coefficients of variation of the two estimated prices from which it is calculated. Thus for example, the coefficient of variation of the index value for 1972 is the square root of the sum of the squares of 1·6 and 2·2 per cent, or 2·7 per cent. The standard error is 2·7 per cent multiplied by the index value, 190, and the maximum likely error is twice this figure, or about 10. Therefore, the rise in the true weighted average price per plot or per acre between 1970 and 1972 was almost certainly (that is, with 95 per cent probability) in the range 80 to 100 per cent. Any bias in the estimated weighted average prices would not affect indices and other estimates of ratios, provided it remained an approximately constant proportion of the true average prices.

Index values before 1969

The new calculations provide indices only from 1969, but a series of indices of prices per plot going back to 1963 has been obtained by linking the former series of indices based on pressure area data only to the new series at 1969. That is, a new index value for each earlier period has been obtained by multiplying the old index value for the period by the ratio of the new index value for 1969 to the old index value for 1969. The opportunity has also been taken to correct the old half-yearly index values in 1968 and 1969 for bias relative to the yearly values in the way that is used in the new calculations (see Section IV). The new index values for 1963 to 1968 are shown in Table F.

Index of price per plot and estimated weighted average price per plot

England and Wales 1963 to 1968

TABLE F

	Index of price per plot	Estimated weighted average price per plot
	1970 = 100	£
1963	46	413
1964	52	473
1965	58	525
1966	62	562
1967	63	575
1968	73	664
1967 1st half	62	559
2nd half	67	606
1968 1st half	67	608
2nd half	79	717

In addition to the index values, Table F gives a series of weighted average prices per plot for 1963 to 1968, estimated by multiplying the index values by the 1970 estimated weighted average price per plot. Although this

Estimated weighted average prices per plot with standard errors and coefficients of variation

England and Wales by region 1969 to 1972

TABLE G

	1969			1970			1971			1972		
	Weighted average price per plot	Standard error	Coefficient of variation	Weighted average price per plot	Standard error	Coefficient of variation	Weighted average price per plot	Standard error	Coefficient of variation	Weighted average price per plot	Standard error	Coefficient of variation
	£		Per cent	£		Per cent	£		Per cent	£		Per cent
North	310	32	*10·3*	370	32	*8·5*	453	35	*7·7*	760	60	*7·9*
Yorkshire and Humberside	401	27	*6·8*	417	40	*9·5*	447	26	*5·8*	662	39	*5·9*
East Midlands	555	31	*5·6*	546	33	*6·1*	710	41	*5·8*	1,077	52	*4·8*
East Anglia	530	36	*66·7*	546	31	*5·7*	604	46	*7·6*	1,587	106	*6·7*
Greater London Area	1,967	63	*3·2*	2,035	72	*3·5*	2,732	101	*3·7*	4,245	204	*4·8*
Outer Metropolitan Area	1,617	89	*5·5*	1,874	59	*3·2*	2,013	75	*3·7*	3,666	210	*5·7*
Outer South East	1,028	49	*4·7*	1,090	38	*3·5*	1,296	56	*4·3*	2,270	116	*5·1*
South East (excluding Greater London Area)	1,319	51	*3·8*	1,477	35	*2·4*	1,650	47	*2·8*	2,959	119	*4·0*
South West	582	34	*5·9*	612	31	*5·1*	752	26	*3·5*	1,332	100	*7·5*
West Midlands	1,014	57	*5·6*	1,129	65	*5·7*	1,081	48	*4·5*	1,492	102	*6·8*
North West	581	37	*6·4*	634	41	*6·4*	712	46	*6·4*	1,051	50	*4·8*
Wales	390	40	*10·3*	556	63	*11·4*	500	48	*9·5*	628	36	*5·8*
England and Wales	828	16	*2·0*	908	15	*1·6*	1,030	16	*1·6*	1,727	37	*2·2*

series provides some guide to the absolute value of average plot prices in 1963 to 1968, the figures cannot be considered as reliable as those from 1969. No attempt has been made to estimate their standard errors which are certainly greater than those from 1969. It is not known to what extent the average densities changed between 1963 and 1968 in the transactions on which 1963 to 1968 indices are based.

Regional results

Table G shows the estimated weighted average prices per plot at constant average density, with their estimated standard errors and coefficients of variation, for regions by years from 1969, while Table H gives the corresponding estimated weighted average prices per acre, with their standard errors. Table I expresses the weighted average prices per plot or per acre as inter-temporal regional indices with 1970 as the base period.

Table G shows that in 1972, regional estimated weighted average prices per plot ranged from about £4,250 in Greater London and £3,670 in the OMA, to £660 in Yorkshire and Humberside and £630 in Wales. In all years since 1969 London has had the highest weighted average price per plot, followed by the OMA and then the OSE; at the other end of the scale Yorkshire and Humberside, the North Region and Wales have had the lowest figures in every year, though their order has varied. Regional estimated weighted average prices per

Estimated weighted average prices per acre with standard errors

England and Wales by region 1969 to 1972

TABLE H

£

	1969		1970		1971		1972	
	Weighted average price per acre	Standard error	Weighted average price per acre	Standard error	Weighted average price per acre	Standard error	Weighted average price per acre	Standard error
North	2,700	280	3,220	280	3,950	300	6,620	520
Yorkshire and Humberside	3,920	270	4,080	390	4,380	250	6,480	380
East Midlands	4,830	270	4,760	290	6,180	360	9,380	450
East Anglia	4,620	310	4,760	270	5,260	400	13,830	920
Greater London Area	38,920	1,250	40,270	1,410	54,060	2,000	84,000	4,050
Outer Metropolitan Area	14,260	790	16,520	522	17,750	660	32,320	1,850
Outer South East	9,170	440	9,730	340	11,570	500	20,260	1,040
South East (excluding Greater London Area)	11,700	450	13,100	310	14,640	410	26,250	1,060
South West	5,070	300	5,330	270	6,550	230	11,600	870
West Midlands	9,360	530	10,420	600	9,980	450	13,770	940
North West	5,590	360	6,110	390	6,860	440	10,120	480
Wales	3,400	350	4,840	550	4,360	420	5,470	310
England and Wales	7,660	150	8,400	130	9,530	150	15,980	340

Note: Coefficients of variation of the weighted average prices per acre are the same as those of the corresponding prices per plot.

acre in 1972 (Table H) are seen to have ranged from about £84,000 in Greater London and £32,300 in the OMA to £6,500 in the Yorkshire and Humberside region and £5,500 in Wales. That the price per acre in London was more than twice that in the OMA even though the price per plot in London was only slightly greater reflects that the average density is much greater in London.

The region with the greatest estimated rise in weighted average prices per plot and per acre (Table I) between 1969 and 1972 was East Anglia (199 per cent), followed by the North (145 per cent); the region with the lowest rise was the West Midlands (47 per cent).

Indices of price per plot or per acre at constant average density

England and Wales by region 1969 to 1972

TABLE I

1970 = 100

	1969	1970	1971	1972
North	84	100	122	205
Yorkshire and Humberside	96	100	107	159
East Midlands	101	100	130	197
East Anglia	97	100	111	291
Greater London Area	97	100	134	209
Outer Metropolitan Area	86	100	107	196
Outer South East	94	100	119	208
South East (excluding Greater London Area)	89	100	112	200
South West	95	100	123	218
West Midlands	90	100	96	132
North West	91	100	112	166
Wales	70	100	90	113
England and Wales	91	100	113	190

The coefficients of variation of the yearly regional estimated weighted average prices per plot and per acre have been considerably higher than those of the England and Wales figures; this reflects the smaller numbers of transactions on which the regional figures are based. Coefficients of variation in London, the OMA and the OSE have typically been in the 3 to 5 per cent range; those in other regions have been higher, typically in the 5 to 7 per cent range, and occasionally going over 10 per cent. The coefficients of variation given in Table G can be used to estimate the maximum likely errors in the estimated regional price changes and in the indices given in Table I in the way described above. Since the regional coefficients of variation have been relatively large, those of the regional price indices have also been large and some of the indices have moved erratically. This is particularly obvious in regions such as Wales for which the weighted average prices in the base period appear to have been subject to a large random fluctuation.

Publication of future results

Regular publication is planned for future figures corresponding to most of those appearing in this article. The price index for England and Wales appearing in Tables E and F of this article appears in place of the former index in Table 3 of *Housing and Construction Statistics* which in future will also show the weighted average prices per plot at constant average density for England and Wales, and a footnote giving the multiplier by which to convert them to prices per acre. Annual supplementary tables in *Housing and Construction Statistics* will show the yearly regional weighted average prices per plot and per acre with their standard errors and coefficients of variation. Supplementary tables will also give the basic descriptive statistics for each year, similar to those given in Tables 1 to 8.

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APPENDIX I

1. Formulae used for the calculation of descriptive statistics

Notation

Let $i(i=1, \ldots, I)$ enumerate the transactions in any group under consideration (for example, those in a region or in England and Wales). Let p_i be the price in transaction i; let n_i be the number of plots in transaction i; let a_i be the number of acres in transaction i.

Let $\bar{p} = \frac{1}{I}\sum_{i=1}^{I} p_i$, the average price per transaction,

$\bar{n} = \frac{1}{I}\sum_{i=1}^{I} n_i$, the average number of plots per transaction,

$\bar{a} = \frac{1}{I}\sum_{i=1}^{I} a_i$, the average number of acres per transaction,

$q_i = \frac{p_i}{n_i}$, the transaction price per plot of transaction i,

and $r_i = \frac{p_i}{a_i}$, the transaction price per acre of transaction i.

Formulae

Simple average price per plot:

$$\frac{\Sigma p_i}{\Sigma n_i} = \frac{\bar{p}}{\bar{n}} = \frac{\Sigma n_i q_i}{\Sigma n_i} = \text{(say) } q'$$

Simple average price per acre:

$$\frac{\Sigma p_i}{\Sigma a_i} = \frac{\bar{p}}{\bar{a}} = \frac{\Sigma a_i r_i}{\Sigma a_i} = \text{(say) } r'$$

Coefficient of variation of prices per plot:

$$\frac{1}{q'}\left(\frac{\Sigma n_i (q_i - q')^2}{\Sigma n_i}\right)^{\frac{1}{2}}$$

Coefficient of variation of prices per acre:

$$\frac{1}{r'}\left(\frac{\Sigma a_i (r_i - r')^2}{\Sigma a_i}\right)^{\frac{1}{2}}$$

Average of transaction prices per plot:

$$\frac{1}{I}\Sigma q_i = \text{(say) } \bar{q}$$

Average of transaction prices per acre:

$$\frac{1}{I}\Sigma r_i = \text{(say) } \bar{r}$$

Coefficient of variation of transaction prices per plot:

$$\frac{1}{\bar{q}}\left(\frac{\Sigma (q_i - \bar{q})^2}{I-1}\right)^{\frac{1}{2}}$$

Coefficient of variation of transaction prices per acre:

$$\frac{1}{\bar{r}}\left(\frac{\Sigma (r_i - \bar{r})^2}{I-1}\right)^{\frac{1}{2}}$$

2. Definition of true average or mean price per plot, mean price per acre, and mean density

Let π be the mean price of each transaction in any group of transactions under consideration, ν be the mean number of plots in each transaction, and α be the mean number of acres in each transaction. That is

$$\pi = E(p_i)$$
$$\nu = E(n_i)$$
$$\alpha = E(a_i)$$

The true average or mean price per plot, θ, is defined by

$$\theta = \frac{\pi}{\nu}$$

The true average or mean price per acre, η, is defined by

$$\eta = \frac{\pi}{\alpha}$$

The true average density, δ, is given by

$$\delta = \frac{\nu}{\alpha} = \frac{\eta}{\theta}$$

3. Definitions of true weighted average price per plot and per acre at constant average density

Let $j(j=1, \ldots, J)$ enumerate the cells over which the weighted averages are to be calculated. Let θ_j and δ_j be respectively the mean price per plot and the mean density in cell j. The cells are defined so that the δ_j's are constant over time.

Our most convenient way of defining the standard collection of land, over which weighted average prices are calculated, is by specifying a constant proportion of *plots* from each cell. Let the proportion of plots from cell j be λ_j. The true weighted average price per plot, $\bar{\theta}$, is defined as the mean price per plot in the standard collection:

$$\bar{\theta} = \frac{\lambda_1\theta_1 + \ldots + \lambda_J\theta_J}{\lambda_1 + \ldots + \lambda_J} \quad \ldots \quad \ldots \quad \ldots \quad \ldots \quad (1)$$

The mean number of acres per plot in cell j is $1/\delta_j$, and therefore the mean number of acres per plot in the standard collection is

$$\frac{\frac{\lambda_1}{\delta_1} + \ldots + \frac{\lambda_J}{\delta_J}}{\lambda_1 + \ldots + \lambda_J}$$

The mean density in the standard collection is the reciprocal of this. The true weighted average price per acre, $\bar{\eta}$, is defined as the mean price per acre in the standard collection, which is the same as the mean price per plot multiplied by the mean density:

$$\bar{\eta} = \bar{\theta}\left(\frac{\lambda_1 + \ldots + \lambda_J}{\frac{\lambda_1}{\delta_1} + \ldots + \frac{\lambda_J}{\delta_J}}\right) \quad \ldots \quad \ldots \quad \ldots \quad \ldots \quad (2)$$

Since the λ's and δ's are constant over time, the weighted average price per acre remains over time a constant multiple of the weighted average price per plot.

4. Estimation of the weighted average price per plot at constant average density, $\bar{\theta}$

Introduction

Our estimate of $\bar{\theta}$ is based on definition (1). To use this definition we have first to choose suitable values for the constant weights, the λ's, and secondly to choose an estimate for the mean price per plot in each cell, θ_j.

Weights

We consider first the choice of the cell weights, the λ_j's. The weight for any cell is chosen to be proportional to two factors, one related to the cell's region or sub-region and the other to its size and density band. Since there are two factors it is convenient for this paragraph to change our notation and use two subscripts to enumerate cells. Let $k(k=1, \ldots, K)$ enumerate the regions or sub-regions and let $j(j=1, \ldots, J_k)$ enumerate the size and density bands within regions or sub-regions. The range of j depends on k because the regions and sub-regions do not all have the same number of size and density bands. Let cell kj be the cell with size and density band j in region or sub-region k. Let s_k be the number of private dwellings started in region or sub-region k over the period 1969 to 1972. Let n_{kj} be the total number of plots in cell kj reported and analysed over the period 1969 to 1972. Then the weight for cell kj, say λ_{kj}, is given by

$$\lambda_{kj} \propto s_k \frac{\sum_{k'} n_{k'j}}{\sum_{k'} \sum_{j} n_{k'j}} \quad \ldots \quad \ldots \quad \ldots \quad \ldots \quad \ldots \quad (3)$$

where the summations over k' are taken over all regions and sub-regions in the group containing region or sub-region k. These weights are kept constant over all periods. The two sets of factors are given in Tables 9 and 10.

Estimate of the mean price per plot within a cell, θ_j

We now consider how to find an estimate, $\hat{\theta}_j$, for the mean price per plot within cell j, θ_j. To simplify our notation in this section we drop until expression (5) the subscript j enumerating cells since the same theory applies to all cells and we do not need to differentiate between them. We use $i(i=1, \ldots, I)$ to enumerate the transactions within the cell under consideration and the notation of Section 1 to denote the actual observations and statistics calculated from them. We use the notation of Section 2 to denote the true parameters of the cell under consideration.

In the estimation of weighted average prices for years, we take the simple average price, q', as our estimate of θ within each cell. That is we set

$$\hat{\theta} = q' = \bar{p}/\bar{n}$$

This estimate is not entirely satisfactory because it is biased. We now derive an expression for the bias. This is taken from the standard theory of ratio estimates and follows the derivation given in Kendall and Stuart (1968, Chapter 40) with appropriate changes in notation.

The bias, β, in $\hat{\theta}$ is given by

$$\begin{aligned}\beta &= E(\hat{\theta}) - \theta \\ &= E(q') - \frac{E(p_i)}{E(n_i)} \\ &= E\left(\frac{\bar{p}}{\bar{n}}\right) - \frac{E(\bar{p})}{E(\bar{n})}\end{aligned}$$

Consider the covariance of q' and $\bar{n}$,

$$cov\,(q', \bar{n}) = cov\left(\frac{\bar{p}}{\bar{n}}, \bar{n}\right) = E\left(\frac{\bar{n}\bar{p}}{\bar{n}}\right) - E\left(\frac{\bar{p}}{\bar{n}}\right)E(\bar{n})$$

$$= E(\bar{p}) - E\left(\frac{\bar{p}}{\bar{n}}\right)E(\bar{n})$$

Hence

$$\beta = E\left(\frac{\bar{p}}{\bar{n}}\right) - \frac{E(\bar{p})}{E(\bar{n})} = \frac{-\,cov\left(\frac{\bar{p}}{\bar{n}}, \bar{n}\right)}{E(\bar{n})}$$

Now the covariance of a pair of sample means, say $\bar{x}$ and $\bar{y}$, is $cov\,(x, y)/I$ where I is the number of observations from which the sample means $\bar{x}$ and $\bar{y}$ are calculated.

This rule provides an approximation for $cov\left(\frac{\bar{p}}{\bar{n}}, \bar{n}\right)$:

$$cov\left(\frac{\bar{p}}{\bar{n}}, \bar{n}\right) \doteq \frac{1}{I} cov\left(\frac{p_i}{n_i}, n_i\right)$$

Hence an approximation for β is

$$\beta \doteq -\frac{cov\,(q_i, n_i)}{I\nu} \quad \ldots \quad \ldots \quad \ldots \quad \ldots \quad \ldots \quad (4)$$

This shows that the simple average price per plot is biased upwards if the covariance of q_i and n_i is negative, that is if transactions with small numbers of plots tend to have high prices per plot. It also shows that the magnitude of the bias is approximately inversely proportional to the number of transactions, I, from which the simple average is calculated.

The standard theory goes on to provide an estimate of β by substituting into (4) estimates of $cov\,(q_i, n_i)$ and of ν. The estimate of $cov\,(q_i, n_i)$ is

$$\frac{\Sigma(q_i - \bar{q})\,(n_i - \bar{n})}{I-1} = \frac{\Sigma q_i n_i - I\bar{n}\bar{q}}{I-1} = \frac{I(\bar{p} - \bar{n}\bar{q})}{I-1}$$

The estimate of ν is $\bar{n}$. Thus the estimate of β, $\hat{\beta}$, is given by

$$\hat{\beta} = \frac{-\,I\,(\bar{p} - \bar{n}\bar{q})}{I\,(I-1)\,\bar{n}} = \frac{\bar{q} - q'}{I-1}$$

This estimate of the bias is not used to correct the simple average prices in cells, because in practice it does not succeed in making the half-yearly and yearly estimated weighted average prices per plot consistent. Instead, the bias in the yearly estimated averages is ignored, and the estimate, $\hat{\theta}$, of the weighted average prices per plot is given by

$$\hat{\theta} = \frac{\lambda_1\hat{\theta}_1 + \ldots + \lambda_J\hat{\theta}_J}{\lambda_1 + \ldots + \lambda_J} = \frac{\lambda_1\frac{\bar{p}_1}{\bar{n}_1} + \ldots + \lambda_J\frac{\bar{p}_J}{\bar{n}_J}}{\lambda_1 + \ldots + \lambda_J} \quad \ldots \quad (5)$$

The same expression is also used for the estimates of the half-yearly national weighted average prices per plot, but these are then corrected for their bias relative to the yearly estimates in the manner described in Section IV of the main text.

5. Estimation of weighted average price per acre at constant average density, $\bar{\eta}$

Estimated weighted average prices per acre at constant average density, $\hat{\bar{\eta}}$, are derived from the corresponding estimated weighted average prices per plot, $\hat{\bar{\theta}}$, using expression (2).

$$\hat{\bar{\eta}} = \hat{\bar{\theta}} \left(\frac{\lambda_1 + \ldots + \lambda_J}{\frac{\lambda_1}{\delta_1} + \ldots + \frac{\lambda_J}{\delta_J}} \right) \quad \ldots \quad \ldots \quad \ldots \quad \ldots \quad (6)$$

That is, the estimated weighted average prices per plot are multiplied by factors which remain constant over time, but differ between regions. The values used for the λ's have already been defined, in Section 4, expression (3). It remains to define values for the densities, δ. Using the same subscripts as in the paragraph on weights in Section 4, the δ's are given by

$$\delta_{kj} = \frac{\sum_{k'} n_{k'j}}{\sum_{k'} a_{k'j}} \quad \ldots \quad \ldots \quad \ldots \quad \ldots \quad \ldots \quad (7)$$

where a_{kj} is the number of acres in cell kj reported and analysed over the period 1969 to 1972, and the summations over k' are taken over all regions and sub-regions in the group containing region or sub-region k.

Table 11 gives the values for the constant multipliers for each region. Regions lying wholly within the same regional group all have the same multiplier, which is just the simple average density calculated over all transactions in the group over the period 1969 to 1972. This may be verified algebraically by substituting into (6) and λ's and δ's given by (3) and (7).

6. Standard errors

Using the notation of Section 1, the standard estimate, $\hat{\sigma}^2$, of the approximate variance of the simple average price per plot in any cell is given by

$$\hat{\sigma}^2 = \frac{\Sigma (p_i - q' n_i)^2}{\bar{n}^2 I(I-1)}$$

The estimated variance of the estimated weighted average price, $\hat{\bar{\theta}}$, is given by

$$var\,(\hat{\bar{\theta}}) = \frac{\lambda_1^2 \hat{\sigma}_1^2 + \ldots + \lambda_J \hat{\sigma}_J^2}{(\lambda_1 + \ldots + \lambda_J)^2}$$

where $\hat{\sigma}_j^2$ is the estimated variance of the simple average price in cell j. The estimated standard error of $\hat{\bar{\theta}}$ is the square root of its estimated variance.

Since the estimated weighted average prices per acre are obtained by multiplying the corresponding estimated weighted average prices per plot by constant multipliers, their estimated standard errors can be obtained by multiplying those of the corresponding prices per plot by the same multipliers. Their coefficients of variation are the same as those of the corresponding prices per plot.

APPENDIX II

Descriptive statistics of plot prices

England and Wales by region, 1969

TABLE 1

(i) Prices per plot

	Plots		Simple average price per plot	Median price per plot	Coeff-icient of variation of prices per plot	Percentage of plots in region with prices						
	Number	Percent-age of all	£		Per cent	Under £500	£500 up to £999	£1,000 up to £1,999	£2,000 up to £2,999	£3,000 up to £4,999	£5,000 up to £9,999	£10,000 and over
North	5,554	7·0	302	268	82	87·6	11·0	1·4	–	–	–	–
Yorkshire and Humberside	7,347	9·2	435	314	94	70·7	23·1	4·7	1·4	0·1	–	–
East Midlands	7,388	9·3	528	451	60	58·2	33·4	8·2	0·2	–	–	–
East Anglia	5,091	6·4	546	402	71	55·8	32·1	11·9	0·2	–	–	–
Greater London Area	2,959	3·7	1,906	1,750	49	–	10·8	53·8	27·3	7·4	0·7	–
Outer Metropolitan Area	6,739	8·5	1,542	1,376	65	9·3	18·2	50·0	14·9	6·6	1·0	–
Outer South East	14,688	18·5	974	900	65	26·3	32·6	34·4	5·3	1·3	0·1	–
South East (excluding Greater London Area)	21,427	27·0	1,153	1,006	70	20·9	28·5	39·1	8·2	2·9	0·3	–
South West	7,389	9·3	561	297	77	57·9	30·0	10·7	0·8	0·6	–	–
West Midlands	6,850	8·6	861	769	78	41·8	27·4	24·6	5·1	1·0	0·1	–
North West	11,143	14·0	542	434	89	60·9	29·3	7·7	1·6	0·5	–	–
Wales	4,405	5·5	422	325	86	76·7	14·3	8·4	0·6	–	–	–
England and Wales	79,553	100·0	752	515	93	49·0	26·1	19·3	4·2	1·3	0·1	–

(ii) Transaction prices per plot

	Transactions		Average of trans-action prices per plot	Median of trans-action prices per plot	Coeff-icient of variation of trans-action prices per plot	Percentage of transactions in region with prices per plot						
	Number	Percent-age of all	£		Per cent	Under £500	£500 up to £999	£1,000 up to £1,999	£2,000 up to £2,999	£3,000 up to £4,999	£5,000 up to £9,999	£10,000 and over
North	80	3·7	423	334	80	76·3	16·3	7·5	–	–	–	–
Yorkshire and Humberside	222	10·1	517	377	94	66·7	23·9	7·2	1·8	0·5	–	–
East Midlands	198	9·0	639	567	63	44·9	38·4	15·7	1·0	–	–	–
East Anglia	137	6·3	691	568	67	44·5	34·3	19·7	1·5	–	–	–
Greater London Area	169	7·7	2,070	1,786	56	–	7·7	54·4	24·3	11·2	2·4	–
Outer Metropolitan Area	288	13·2	1,920	1,708	58	4·9	12·5	46·5	24·0	10·1	2·1	–
Outer South East	327	14·9	1,321	1,120	62	11·6	31·2	40·2	12·8	3·4	0·6	–
South East (excluding Greater London Area)	615	28·1	1,601	1,350	64	8·4	22·6	43·2	18·0	6·5	1·3	–
South West	234	10·7	737	599	73	40·6	37·2	17·9	3·8	0·5	–	–
West Midlands	184	8·4	1,219	1,000	78	23·9	26·1	37·3	8·7	3·3	0·5	–
North West	246	11·2	723	503	93	50·0	29·7	16·2	2·8	1·2	–	–
Wales	106	4·8	474	339	94	70·8	20·8	5·7	2·8	–	–	–
England and Wales	2,191	100·0	1,063	788	89	34·1	26·0	27·2	8·9	3·2	0·6	–

Descriptive statistics of plot prices

England and Wales by region, 1970

TABLE 2

(i) Prices per plot

	Plots		Simple average price per plot	Median price per plot	Coefficient of variation of prices per plot	Percentage of plots in region with prices						
	Number	Percentage of all	£		Per cent	Under £500	£500 up to £999	£1,000 up to £1,999	£2,000 up to £2,999	£3,000 up to £4,999	£5,000 up to £9,999	£10,000 and over
North	5,838	8·2	310	306	70	80·8	18·9	0·2	–	–	–	–
Yorkshire and Humberside	6,753	9·5	483	342	93	75·5	11·4	11·5	1·5	0·1	–	–
East Midlands	5,801	8·2	535	500	64	51·7	43·6	3·5	1·0	0·2	–	–
East Anglia	3,946	5·6	570	525	59	49·1	40·8	9·6	0·3	0·1	–	–
Greater London Area	2,889	4·1	2,125	1,718	59	1·5	9·7	50·4	19·8	14·8	3·7	–
Outer Metropolitan Area	6,315	8·9	1,917	1,674	53	1·8	13·2	45·9	28·4	9·7	1·0	–
Outer South East	12,557	17·7	1,046	980	54	17·6	41·0	33·2	7·4	0·8	–	–
South East (excluding Greater London Area)	18,872	26·6	1,338	1,138	64	12·3	31·6	37·6	14·4	3·8	0·3	–
South West	7,811	11·0	564	504	72	49·8	37·1	12·3	0·7	0·2	–	–
West Midlands	4,475	6·3	1,153	938	70	12·2	44·4	33·0	7·3	2·7	0·4	–
North West	9,995	14·1	613	477	80	52·9	33·0	12·0	1·8	0·4	–	–
Wales	4,563	6·4	567	461	57	53·5	39·4	7·1	–	–	–	–
England and Wales	70,943	100·0	847	603	92	41·2	31·3	19·7	5·6	1·9	0·3	–

(ii) Transaction prices per plot

	Transactions		Average of transaction prices per plot	Median of transaction prices per plot	Coefficient of variation of transaction prices per plot	Percentage of transactions in region with prices per plot						
	Number	Percentage of all	£		Per cent	Under £500	£500 up to £999	£1,000 up to £1,999	£2,000 up to £2,999	£3,000 up to £4,999	£5,000 up to £9,999	£10,000 and over
North	76	3·8	461	452	61	65·8	31·6	2·6	–	–	–	–
Yorkshire and Humberside	210	10·7	581	402	102	63·3	24·3	9·0	2·9	0·5	–	–
East Midlands	173	8·8	718	567	78	41·0	41·6	12·7	3·5	1·2	–	–
East Anglia	95	4·8	745	556	72	41·1	35·8	20·0	2·1	1·1	–	–
Greater London Area	186	9·4	2,159	1,750	60	1·1	9·7	51·6	18·3	16·1	3·2	–
Outer Metropolitan Area	274	13·9	2,251	1,992	58	2·2	9·2	41·6	27·0	16·4	3·6	–
Outer South East	285	14·5	1,428	1,250	53	5·6	27·7	46·3	16·5	3·9	–	–
South East (excluding Greater London Area)	559	28·4	1,831	1,556	63	4·1	18·5	44·3	21·5	9·9	1·8	–
South West	186	9·4	766	625	82	40·3	37·1	17·7	3·8	1·1	–	–
West Midlands	145	7·4	1,403	1,143	74	8·3	35·2	40·0	9·7	4·8	2·1	–
North West	249	12·7	816	625	85	41·8	32·5	18·9	5·6	1·2	–	–
Wales	90	4·6	495	434	61	61·1	33·3	5·6	–	–	–	–
England and Wales	1,969	100·0	1,204	888	89	28·5	27·1	27·8	10·4	5·2	1·0	–

Descriptive statistics of plot prices

England and Wales by region, 1971

TABLE 3

(i) Prices per plot

	Plots		Simple average price per plot	Median price per plot	Coeff-icient of variation of prices per plot	Percentage of plots in region with prices						
	Number	Percent-age of all	£		Per cent	Under £500	£500 up to £999	£1,000 up to £1,999	£2,000 up to £2,999	£3,000 up to £4,999	£5,000 up to £9,999	£10,000 and over
North	8,092	8·7	421	416	59	68·9	29·3	1·8	—	—	—	—
Yorkshire and Humberside	8,922	9·6	429	355	78	72·7	22·9	4·0	0·3	0·1	—	—
East Midlands	5,845	6·3	699	652	71	39·4	45·0	12·8	2·8	0·2	—	—
East Anglia	7,045	7·6	647	474	79	52·0	28·3	18·2	0·6	1·0	—	—
Greater London Area	3,987	4·3	2,880	2,380	61	0·4	6·1	30·8	26·2	24·7	10·8	1·0
Outer Metropolitan Area	7,909	8·5	2,069	1,552	75	3·1	25·9	34·7	16·4	13·9	6·0	0·1
Outer South East	12,525	13·6	1,288	1,114	65	11·3	35·5	39·1	9·9	4·0	0·2	—
South East (excluding Greater London Area)	20,434	22·1	1,590	1,200	77	8·0	32·0	37·3	12·3	7·9	2·4	0·1
South West	11,039	11·9	585	462	76	54·7	31·6	12·8	0·5	0·4	—	—
West Midlands	6,861	7·4	1,026	917	65	20·1	34·5	39·6	4·5	0·8	0·4	—
North West	14,435	15·6	682	506	82	49·5	25·8	22·0	2·3	0·4	—	—
Wales	5,993	6·5	494	400	103	72·7	20·8	3·9	2·3	0·3	0·1	—
England and Wales	92,653	100·0	930	629	107	42·0	28·6	20·2	5·0	3·1	1·0	0·1

(ii) Transaction prices per plot

	Transactions		Average of trans-action prices per plot	Median of trans-action prices per plot	Coeff-icient of variation of trans-action prices per plot	Percentage of transactions in region with prices per plot						
	Number	Percent-age of all	£		Per cent	Under £500	£500 up to £999	£1,000 up to £1,999	£2,000 up to £2,999	£3,000 up to £4,999	£5,000 up to £9,999	£10,000 and over
North	105	4·1	630	550	61	45·7	40·0	14.3	—	—	—	—
Yorkshire and Humberside	260	10·1	567	447	91	60·3	29·2	8·5	1·2	0·8	—	—
East Midlands	175	6·8	872	775	64	27·4	43·5	25·1	3·4	0·6	—	—
East Anglia	184	7·1	883	700	75	31·0	40·8	22·3	3·8	2·2	—	—
Greater London Area	225	8·7	2,905	2,300	61	0·4	3·1	35·1	27·1	20·9	12·9	0·4
Outer Metropolitan Area	321	12·4	3,029	2,600	64	1·6	8·1	27·4	22·1	25·9	14·3	0·6
Outer South East	366	14·2	1,665	1,400	71	6·0	25·7	40·4	18·9	7·9	0·8	0·3
South East (excluding Greater London Area)	687	26·6	2,302	1,875	75	3·9	17·9	34·1	20·1	16·5	7·0	0·4
South West	273	10·6	810	643	79	40·3	34·1	22·2	2·2	2·2	—	—
West Midlands	223	8·6	1,363	1,115	78	10·8	27·8	48·9	7·2	3·4	1·8	—
North West	326	12·6	857	644	84	39·3	30·4	22·1	6·7	1·5	—	—
Wales	123	4·8	712	450	126	59·3	24·4	10·6	4·1	0·8	0·8	—
England and Wales	2,581	100·0	1,417	982	101	26·1	26·5	26·6	10·2	7·2	3·2	0·2

Descriptive statistics of plot prices

England and Wales by region, 1972

TABLE 4

(i) Prices per plot

	Plots		Simple average price per plot	Median price per plot	Coefficient of variation of prices per plot	Percentage of plots in region with prices						
	Number	Percentage of all	£		Per cent	Under £500	£500 up to £999	£1,000 up to £1,999	£2,000 up to £2,999	£3,000 up to £4,999	£5,000 up to £9,999	£10,000 and over
North	11,433	7·0	748	633	76	42·9	31·4	24·2	0·5	1·0	–	–
Yorkshire and Humberside	17,824	10·9	673	464	104	55·0	24·9	15·8	2·0	1·5	0·8	–
East Midlands	11,004	6·7	1,046	790	86	25·9	37·0	27·0	5·7	3·4	1·0	–
East Anglia	11,276	6·8	1,635	1,272	83	16·4	22·0	34·8	16·0	7·9	3·1	–
Greater London Area	5,585	3·4	3,970	3,000	81	0·2	4·7	26·8	19·0	25·2	19·2	4·9
Outer Metropolitan Area	16,275	9·9	3,150	2,099	86	0·1	5·4	42·1	11·3	25·3	13·6	2·2
Outer South East	18,337	11·1	2,314	1,716	83	4·5	24·9	26·2	19·3	16·1	8·5	0·5
South East (excluding Greater London Area)	34,612	21·0	2,707	1,910	87	2·4	15·8	33·7	15·5	20·4	10·9	1·3
South West	16,198	9·8	1,122	766	113	36·4	26·4	24·6	6·7	4·8	0·9	0·2
West Midlands	12,421	7·6	1,478	1,150	78	13·9	23·4	41·7	9·7	9·6	1·7	–
North West	26,350	16·0	952	714	86	34·7	28·9	25·6	8·1	2·5	0·2	–
Wales	17,681	10·8	607	484	82	52·3	34·2	11·5	1·6	0·4	–	–
England and Wales	164,384	100·0	1,452	939	118	28·2	25·0	26·5	8·5	7·8	3·5	0·5

(ii) Transaction prices per plot

	Transactions		Average of transaction prices per plot	Median of transaction prices per plot	Coefficient of variation of transaction prices per plot	Percentage of transactions in region with prices per plot						
	Number	Percentage of all	£		Per cent	Under £500	£500 up to £999	£1,000 up to £1,999	£2,000 up to £2,999	£3,000 up to £4,999	£5,000 up to £9,999	£10,000 and over
North	214	5·3	895	692	84	37·4	32·2	23·4	4·7	2·3	–	–
Yorkshire and Humberside	499	12·3	838	571	103	43·7	31·7	18·0	4·0	1·6	1·0	–
East Midlands	325	8·0	1,444	977	92	20·6	30·8	27·7	8·9	8·3	3·7	–
East Anglia	278	6·9	1,790	1,200	88	16·5	25·2	26·7	14·7	11·5	5·4	–
Greater London Area	289	7·1	5,017	4,000	75	0·3	1·4	13·1	18·7	31·9	26·3	8·3
Outer Metropolitan Area	427	10·5	5,083	4,000	75	0·5	1·9	16·4	14·8	28·1	29·0	9·3
Outer South East	469	11·6	3,203	2,500	74	1·9	12·3	26·0	17·6	24·6	15·6	1·9
South East (excluding Greater London Area)	896	22·1	4,099	3,294	80	1·2	7·4	21·4	16·2	26·3	22·0	5·5
South West	414	10·2	1,599	1,038	110	25·3	24·1	23·9	13·5	9·2	3·4	0·5
West Midlands	358	8·9	1,933	1,567	74	8·7	19·8	36·3	16·2	14·5	4·5	–
North West	477	11·7	1,209	901	89	27·0	28·9	27·1	9·6	6·1	1·3	–
Wales	304	7·5	791	574	92	45·4	32·6	14·8	5·3	1·9	–	–
England and Wales	4,054	100·0	2,188	1,267	117	20·4	21·6	23·1	11·8	12·9	8·4	1·8

Descriptive statistics of acre prices

England and Wales by region, 1969

TABLE 5

(i) Prices per acre

	Acres		Simple average price per acre	Median price per acre	Coefficient of variation of prices per acre	Percentage of acres in region with prices						
	Number	Percentage of all	£		Per cent	Under £2,500	£2,500 up to £4,999	£5,000 up to £9,999	£10,000 up to £19,999	£20,000 up to £39,999	£40,000 up to £99,999	£100,000 and over
North	662	7·5	2,540	2,440	66	50·4	44·0	5·4	0·2	–	–	–
Yorkshire and Humberside	803	9·1	3,990	3,090	73	35·5	35·2	22·5	6·7	0·1	–	–
East Midlands	836	9·5	4,670	4,430	57	23·6	40·7	32·8	2·9	–	–	–
East Anglia	660	7·5	4,220	2,940	91	42·5	33·0	17·3	7·0	0·2	–	–
Greater London Area	145	1·7	39,040	37,570	52	–	2·1	–	12·2	43·3	41·3	1·1
Outer Metropolitan Area	832	9·5	12,490	12,280	69	13·7	6·9	16·6	48·7	13·3	0·8	–
Outer South East	1,555	17·7	9,200	8,030	64	3·8	21·9	40·8	28·5	4·9	0·1	–
South East (excluding Greater London Area)	2,387	27·2	10,350	9,190	69	7·3	16·6	32·2	35·6	8·0	0·3	–
South West	886	10·1	4,680	3,800	74	26·0	41·5	24·5	8·0	–	–	–
West Midlands	676	7·7	8,730	6,670	74	13·1	28·1	22·2	31·6	5·0	–	–
North West	1,175	13·4	5,140	4,280	76	24·4	35·9	31·4	6·9	1·4	–	–
Wales	557	6·3	3,340	2,420	76	50·6	31·3	16·8	1·3	–	–	–
England and Wales	8,786	100·0	6,810	4,470	109	24·5	30·5	25·1	15·6	3·5	0·8	–

(ii) Transaction prices per acre

	Average of transaction prices per acre	Median of transaction prices per acre	Coefficient of variation of transaction prices per acre	Percentage of transactions in region with prices per acre						
	£		Per cent	Under £2,500	£2,500 up to £4,999	£5,000 up to £9,999	£10,000 up to £19,999	£20,000 up to £39,999	£40,000 up to £99,999	£100,000 and over
North	3,290	2,740	71	40·0	45·0	12·5	2·5	–	–	–
Yorkshire and Humberside	4,600	3,400	82	30·6	37·8	21·6	9·5	0·5	–	–
East Midlands	5,430	4,800	63	20·2	33·8	37·4	8·6	–	–	–
East Anglia	5,420	3,520	88	27·0	37·2	21·9	12·4	1·5	–	–
Greater London Area	46,050	41,180	50	–	0·6	–	5·9	40·2	50·9	2·4
Outer Metropolitan Area	17,690	14,920	58	2·4	2·8	17·0	46·5	28·5	2·8	–
Outer South East	13,460	11,080	70	2·2	10·7	33·3	33·6	19·0	1·2	–
South East (excluding Greater London Area)	15,440	12,630	65	2·4	6·8	25·6	39·6	23·5	1·9	–
South West	5,850	4,790	75	24·4	29·1	29·9	16·2	0·4	–	–
West Midlands	11,950	11,750	62	6·0	16·3	23·4	40·2	14·2	–	–
North West	6,760	5,700	74	18·3	28·5	33·6	15·9	3·7	–	–
Wales	3,520	2,460	86	50·9	28·3	16·0	4·7	–	–	–
England and Wales	11,860	7,120	119	16·3	21·7	24·4	21·4	11·5	4·5	0·2

Descriptive statistics of acre prices

England and Wales by region, 1970

TABLE 6

(i) Prices per acre

	Acres		Simple average price per acre	Median price per acre	Coeff-icient of variation of prices per acre	Percentage of acres in region with prices						
	Number	Percent-age of all	£		Per cent	Under £2,500	£2,500 up to £4,999	£5,000 up to £9,999	£10,000 up to £19,999	£20,000 up to £39,999	£40,000 up to £99,999	£100,000 and over
North	626	8·2	2,900	2,410	68	54·6	24·8	20·3	0·3	–	–	–
Yorkshire and Humberside	730	9·5	4,480	3,420	75	27·6	43·7	16·2	12·6	–	–	–
East Midlands	620	8·1	5,000	4,480	59	20·9	35·5	37·3	6·3	–	–	–
East Anglia	486	6·3	4,630	4,540	55	14·5	49·9	30·5	4·9	0·2	–	–
Greater London Area	159	2·1	38,660	37,140	52	–	0·5	6·1	3·3	48·2	41·0	0·9
Outer Metropolitan Area	732	9·5	16,530	14,850	57	6·0	4·7	12·9	47·4	27·4	1·6	–
Outer South East	1,530	20·0	8,590	7,710	67	8·4	19·7	39·0	29·7	3·2	–	–
South East (excluding Greater London Area)	2,262	29·5	11,160	9,740	72	7·6	14·9	30·4	35·4	11·2	0·5	–
South West	855	11·1	5,160	4,010	69	29·7	22·0	38·4	9·7	0·2	–	–
West Midlands	449	5·8	11,510	9,670	56	0·5	14·2	37·7	36·1	11·6	–	–
North West	1,000	13·0	6,130	5,750	65	16·3	28·0	38·4	16·9	0·4	–	–
Wales	492	6·4	5,230	4,200	66	24·6	32·4	37·3	5·6	–	–	–
England and Wales	7,679	100·0	7,840	5,690	104	19·0	25·6	31·0	18·3	5·1	1·0	–

(ii) Transaction prices per acre

	Average of trans-action prices per acre	Median of trans-action prices per acre	Coeff-icient of variation of trans-action prices per acre	Percentage of transactions in region with prices per acre						
	£		Per cent	Under £2,500	£2,500 up to £4,999	£5,000 up to £9,999	£10,000 up to £19,999	£20,000 up to £39,999	£40,000 up to £99,999	£100,000 and over
North	4,230	4,150	61	34·2	27·6	34·2	3·9	–	–	–
Yorkshire and Humberside	5,160	4,220	69	22·4	38·1	28·1	11·4	–	–	–
East Midlands	5,990	5,310	59	16·2	29·4	43·4	11·0	–	–	–
East Anglia	5,670	4,550	75	18·9	37·9	28·4	12·6	2·1	–	–
Greater London Area	43,160	41,770	45	–	0·5	2·2	3·8	40·9	51·1	1·6
Outer Metropolitan Area	19,860	17,810	57	1·5	2·9	11·6	45·3	33·6	5·1	–
Outer South East	13,780	11,600	62	3·2	7·0	29·1	40·7	19·6	0·4	–
South East (excluding Greater London Area)	15,760	14,780	62	2·3	5·1	20·1	42·3	27·5	2·6	–
South West	6,000	5,070	74	22·6	26·9	34·4	15·1	1·1	–	–
West Midlands	13,120	11,860	55	1·4	11·7	27·6	42·8	16·6	–	–
North West	7,760	6,650	76	12·9	24·1	34·5	26·9	1·2	0·4	–
Wales	4,370	3,530	72	28·9	40·0	25·6	5·6	–	–	–
England and Wales	13,060	8,280	107	11·9	19·3	26·3	23·7	13·0	5·6	0·2

Descriptive statistics of acre prices

England and Wales by region, 1971

TABLE 7

(i) Prices per acre

	Acres		Simple average price per acre	Median price per acre	Coeff-icient of variation of prices per acre	Percentage of acres in region with prices						
	Number	Percent-age of all	£		Per cent	Under £2,500	£2,500 up to £4,999	£5,000 up to £9,999	£10,000 up to £19,999	£20,000 up to £39,999	£40,000 up to £99,999	£100,000 and over
North	839	8·4	4,060	4,150	55	23·7	46·7	27·8	1·8	–	–	–
Yorkshire and Humberside	856	8·5	4,470	3,710	65	25·5	36·5	34·1	3·7	0·2	–	–
East Midlands	681	6·8	6,000	5,870	56	16·3	24·3	49·2	10·1	0·1	–	–
East Anglia	891	8·9	5,110	3,670	75	26·3	35·9	27·7	10·0	0·1	–	–
Greater London Area	216	2·2	53,120	51,810	53	–	0·6	0·4	11·1	23·0	60·5	4·4
Outer Metropolitan Area	905	9·0	18,090	14,290	58	1·7	4·1	12·5	51·1	26·4	4·1	–
Outer South East	1,427	14·2	11,300	10,210	62	3·4	11·9	29·4	45·1	9·5	0·7	–
South East (excluding Greater London Area)	2,332	23·2	13,940	12,000	66	2·7	8·9	22·8	47·5	16·0	2·1	–
South West	1,344	13·4	4,800	3,440	74	29·0	33·4	29·0	8·5	0·1	–	–
West Midlands	675	6·7	10,440	9,500	60	3·9	17·9	36·7	31·2	10·3	–	–
North West	1,459	14·5	6,750	4,990	76	21·6	28·5	24·2	24·6	1·1	–	–
Wales	740	7·4	4,000	3,390	83	35·9	40·6	19·6	2·6	1·2	–	–
England and Wales	10,033	100·0	8,590	5,750	120	18·4	26·7	27·6	20·2	5·2	1·8	0·1

(ii) Transaction prices per acre

	Average of trans-action prices per acre	Median of trans-action prices per acre	Coeff-icient of variation of trans-action prices per acre	Percentage of transaction in region with prices per acre						
	£		Per cent	Under £2,500	£2,500 up to £4,999	£5,000 up to £9,999	£10,000 up to £19,999	£20,000 up to £39,999	£40,000 up to £99,999	£100,000 and over
North	5,690	4,890	64	14·3	37·1	37·1	11·4	–	–	–
Yorkshire and Humberside	5,560	4,630	72	20·3	35·8	31·2	11·9	0·8	–	–
East Midlands	7,110	6,530	57	8·6	22·9	48·0	19·4	1·1	–	–
East Anglia	6,550	5,440	66	13·6	34·2	33·7	17·4	1·1	–	–
Greater London Area	60,020	55,880	51	–	0·4	0·4	6·7	17·8	67·1	7·6
Outer Metropolitan Area	25,480	23,300	55	0·6	1·9	7·8	33·3	41·7	14·6	–
Outer South East	16,300	12,020	74	2·5	4·4	29·5	36·6	22·1	4·9	–
South East (excluding Greater London Area)	20,400	17,010	67	1·6	3·2	19·2	35·0	31·3	9·8	–
South West	6,270	5,260	78	22·3	26·7	31·5	18·7	0·4	0·4	–
West Midlands	13,430	12,520	58	3·6	9·4	27·4	39·5	20·2	–	–
North West	8,270	6,850	80	13·2	26·3	29·8	25·8	4·6	0·3	–
Wales	5,410	3,850	96	35·8	32·5	17·1	11·4	3·3	–	–
England and Wales	15,520	8,950	125	10·6	18·5	25·8	23·3	12·6	8·5	0·7

Descriptive statistics of acre prices

England and Wales by region, 1972

TABLE 8

(i) Prices per acre

	Acres		Simple average price per acre	Median price per acre	Coefficient of variation of prices per acre	Percentage of acres in region with prices						
	Number	Percentage of all	£		Per cent	Under £2,500	£2,500 up to £4,999	£5,000 up to £9,999	£10,000 up to £19,999	£20,000 up to £39,999	£40,000 up to £99,999	£100,000 and over
North	1,237	7·0	6,910	5,620	67	19·1	24·8	33·8	22·1	0·2	–	–
Yorkshire and Humberside	1,956	11·0	6,130	4,220	85	22·7	34·7	22·6	17·4	2·4	0·2	–
East Midlands	1,346	7·6	8,550	7,060	76	15·6	18·0	33·6	26·6	6·1	0·1	–
East Anglia	1,323	7·5	13,930	10,450	80	8·1	12·8	26·5	28·4	20·6	3·5	–
Greater London Area	260	1·5	85,380	67,570	80	–	–	–	–	15·9	56·4	26·6
Outer Metropolitan Area	1,754	9·9	29,220	19,990	75	–	0·2	6·8	43·3	27·5	20·9	1·3
Outer South East	1,998	11·3	21,230	16,670	75	0·7	13·7	16·1	24·2	34·3	10·9	0·1
South East (excluding Greater London Area)	3,752	21·2	24,970	19,060	78	0·4	7·4	11·7	33·1	31·1	15·6	0·7
South West	1,873	10·6	9,700	7,020	87	11·0	27·9	29·0	22·7	8·8	0·5	–
West Midlands	1,429	8·1	12,850	9,570	85	10·0	19·2	24·5	25·0	18·3	3·0	–
North West	2,566	14·5	9,780	7,540	81	12·4	19·2	30·7	23·8	13·7	0·2	–
Wales	1,927	10·9	5,570	4,450	79	26·0	28·0	32·2	12·9	0·7	–	–
England and Wales	17,669	100·0	13,510	8,350	132	12·4	19·8	24·9	24·0	13·6	4·8	0·5

(ii) Transaction prices per acre

	Average of transaction prices per acre	Median of transaction prices per acre	Coefficient of variation of transaction prices per acre	Percentage of transactions in region with prices per acre						
	£		Per cent	Under £2,500	£2,500 up to £4,999	£5,000 up to £9,999	£10,000 up to £19,999	£20,000 up to £39,999	£40,000 up to £99,999	£100,000 and over
North	6,920	5,390	68	16·8	29·0	29·4	23·4	1·4	–	–
Yorkshire and Humberside	7,570	5,590	89	13·8	30·1	31·9	20·0	3·2	1·0	–
East Midlands	10,770	8,090	83	8·0	17·8	34·2	27·7	11·1	1·2	–
East Anglia	13,840	9,380	88	7·6	14·4	30·2	25·5	16·9	5·4	–
Greater London Area	112,440	86,110	91	–	–	–	0·7	7·3	50·8	41·2
Outer Metropolitan Area	43,420	35,700	65	–	0·5	3·1	17·5	35·8	37·7	5·4
Outer South East	27,960	23,760	72	0·6	3·2	12·6	25·8	36·5	20·5	0·8
South East (excluding Greater London Area)	35,330	29,580	72	0·3	1·9	8·0	21·9	36·2	28·7	3·0
South West	11,790	8,020	93	9·9	22·7	26·1	24·6	14·2	2·4	–
West Midlands	19,060	15,470	71	2·8	8·4	22·9	26·0	30·7	9·2	–
North West	12,000	8,940	87	9·4	15·7	28·9	28·9	15·2	1·9	–
Wales	6,660	4,800	84	18·7	32·9	29·6	15·8	3·0	–	–
England and Wales	23,730	11,360	172	7·6	15·5	22·4	21·9	17·2	11·8	3·6

APPENDIX III

Classification of land transactions

TABLE 9

Regions and sub-regions; weights

Economic Planning Region	Weight (England and Wales = 100)	Sub-regions for classifications with weight (England and Wales = 100)
North	5·951	No sub-division
Yorkshire and Humberside	8·873	(a) West and South Yorkshire Metropolitan Counties, 5·906 (b) Rest, 2·967
East Midlands	8·957	(a) Derby, Lincolnshire and Nottinghamshire, 4·688 (b) Leicestershire and Northamptonshire, 4·269
East Anglia	6·461	(a) Cambridgeshire, 2·187 (b) Norfolk and Suffolk, 4·274
South East:		
Greater London Area	4·812	No sub-division
Outer Metropolitan Area	12·604	(a) Inner, 5·412 (b) Outer, 7·192
Outer South East	12·946	(a) Kent and Sussex, 4·102 (b) Hampshire, 4·545 (c) Rest, 4·299
South West	11·540	(a) Dorset and Wiltshire, 2·657 (b) Avon and Gloucester, 3·537 (c) Somerset, Devon and Cornwall, 5·346
West Midlands	9·408	(a) West Midland Metropolitan County, 3·201 (b) Hereford, Salop and Worcestershire, 2·559 (c) Staffordshire and Warwickshire, 3·648
North West	12·655	(a) Merseyside and Greater Manchester, 7·303 (b) Lancashire, 2·787 (c) Cheshire, 2·565
Wales	5·793	No sub-division

Classification of land transactions

Size and density bands; weights

TABLE 10

Sub-region	Site size Number of plots		Density Plots per acre	Weight (sub-region = 100)
Greater London Area	(a)	All	Up to 7·5	4·6628
	(b)	All	Over 7·5, up to 11·0	5·5642
	(c)	All	Over 11·0, up to 14·5	5·6355
	(d)	All	Over 14·5, up to 18·0	10·4669
	(e)	All	Over 18·0, up to 22·0	17·3606
	(f)	All	Over 22·0, up to 30·0	14·6592
	(g)	All	Over 30·0, up to 40·0	25·2529
	(h)	All	Over 40·0, up to 60·0	16·3619
Outer Metropolitan Area (both sub-regions)	(a)	4–19	Up to 7·5	7·4145
	(b)	4–19	Over 7·5, up to 11·0	4·8016
	(c)	4–19	Over 11·0, up to 18·0	5·2984
	(d)	4–19	Over 18·0, up to 30·0	2·4652
	(e)	20 and over	Up to 7·5	10·1106
	(f)	20 and over	Over 7·5, up to 11·0	36·2855
	(g)	20 and over	Over 11·0, up to 18·0	30·0177
	(h)	20 and over	Over 18·0, up to 30·0	3·6065
Outer South East (all sub-regions)	(a)	4–19	Up to 7·5	3·8980
	(b)	4–19	Over 7·5, up to 11·0	3·4677
	(c)	4–19	Over 11·0, up to 18·0	3·2457
	(d)	4–19	Over 18·0, up to 30·0	1·1204
	(e)	20 and over	Up to 7·5	15·2701
	(f)	20 and over	Over 7·5, up to 11·0	33·3282
	(g)	20 and over	Over 11·0, up to 18·0	34·8254
	(h)	20 and over	Over 18·0, up to 30·0	4·8445
Metropolitan Counties except Tyne and Wear	(a)	4–19	Up to 7·5	2·7704
	(b)	4–19	Over 7·5, up to 11·0	3·3638
	(c)	4–19	Over 11·0, up to 18·0	4·4645
	(d)	4–19	Over 18·0, up to 30·0	2·1461
	(e)	20 and over	Up to 7·5	15·2701
	(f)	20 and over	Over 7·5, up to 11·0	32·9777
	(g)	20 and over	Over 11·0, up to 18·0	43·1943
	(h)	20 and over	Over 18·0, up to 30·0	4·9112
All other regions and sub-regions	(a)	4–19	Up to 7·5	4·5539
	(b)	4–19	Over 7·5, up to 11·0	4·0144
	(c)	4–19	Over 11·0, up to 18·0	2·2873
	(d)	20 and over	Up to 7·5	12·0248
	(e)	20 and over	Over 7·5, up to 11·0	52·4509
	(f)	20 and over	Over 11·0, up to 18·0	24·6687

Assumed constant average densities : multipliers to convert weighted average prices per plot into weighted average prices per acre

TABLE 11

North	8·712
Yorkshire and Humberside	9·789
East Midlands	8·712
East Anglia	8·712
Greater London Area	19·789
Outer Metropolitan Area	8·817
Outer South East	8·925
South East (excluding Greater London Area)	8·871
South West	8·712
West Midlands	9·231
North West	9·631
Wales	8·712
England and Wales	9·255

CHARTS AND TABLES

The purpose of the charts and tables is to provide the broad background to the trends of the economy rather than to give detailed information about particular series (for which the *Monthly Digest of Statistics* and other publications may be consulted). Economically related series are grouped together and consequently the same series may appear on more than one page.

Most series are seasonally adjusted, that is, normal seasonal changes have as far as possible been removed from the figures; by this means movements in different periods may more readily be compared, but it must be borne in mind that the seasonal adjustments are subject to some uncertainties. For series which still show considerable short-term fluctuations after seasonal adjustment a trend line has been fitted by the use of weighted moving averages.

For convenience of comparison, index numbers in some charts and tables are referred to a common date as base which differs from the original base dates to which their weighting applies.

In order that recent movements may be seen in perspective most of the charts cover a long run of years, but some of the series (for example, measures of volume or of price changes) may provide only a broad guide to changes over long periods.

Logarithmic scales are used in charts where the main purpose is to compare the slopes of series which are very different in magnitude.

Except where otherwise stated, monthly and quarterly figures relate to totals for the period and are not converted to annual rates. The statistics relate mainly to the United Kingdom of Great Britain and Northern Ireland; where figures are for Great Britain only, this is indicated on the table.

In tables where figures have been rounded to the nearest final digit, there may be an apparent slight discrepancy between the sum of the constituent items and the total as shown. The following symbols are used in the tables:

.. not available
— nil or less than half the final digit shown
§ series for which measures of variability are given on page 42

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Main economic series

All series are seasonally adjusted unless otherwise stated

	Gross domestic product at factor cost at 1970 prices (1) §				Index of industrial production §		Employed labour force (2)	Output per person employed at 1970 prices			Wages and salaries per unit of output	Unemployed excluding school-leavers and adult students (UK)	
	Expenditure based	Income based (3)	Output based	Average estimate	All industries	Manufacturing industries		Gross domestic product (Output)	All production industries	Manufacturing industries	Whole economy	Monthly average Thousands	Percentage rate(4)
	1970 = 100												
1962 1st quarter	..	..	78·5	..	76·6	74·3	..	..	..	..	72·8	387·7	1·7
2nd quarter	..	..	79·5	..	77·8	75·5	..	..	..	..	74·0	436·7	1·9
3rd quarter	..	..	80·1	..	78·4	76·1	..	..	..	..	74·2	482·8	2·1
4th quarter	..	..	79·6	..	77·1	75·1	..	..	..	..	74·1	520·9	2·2
1963 1st quarter	79·4	79·1	78·7	79·1	75·3	74·0	..	..	73·6	73·9	75·3	585·4	2·5
2nd quarter	83·4	82·7	81·8	82·6	79·0	76·8	..	..	76·6	76·8	73·5	557·5	2·4
3rd quarter	83·4	83·9	83·2	83·5	81·3	79·4	..	..	78·6	79·4	73·7	526·4	2·2
4th quarter	85·3	85·0	84·4	84·9	83·1	81·3	..	..	80·1	81·1	74·2	480·5	2·0
1964 1st quarter	85·8	85·5	85·5	85·6	85·6	84·1	100·9	84·7	82·0	83·4	75·3	418·8	1·8
2nd quarter	88·2	87·0	86·8	87·4	85·6	84·1	100·1	85·8	81·8	83·0	75·4	404·0	1·7
3rd quarter	87·6	88·3	87·2	87·7	86·2	84·9	101·5	85·9	82·1	83·5	76·0	389·9	1·6
4th quarter	89·0	87·9	88·5	88·5	88·5	87·3	101·9	86·9	83·8	85·4	77·9	353·8	1·5
1965 1st quarter	89·3	89·0	89·0	89·1	89·0	87·1	102·2	87·3	84·0	85·0	77·9	332·1	1·4
2nd quarter	89·2	89·6	89·1	89·3	88·7	87·4	102·2	87·2	83·7	85·2	78·8	338·1	1·4
3rd quarter	90·2	90·5	89·5	90·0	88·7	87·2	102·2	87·6	83·6	84·7	79·6	352·8	1·5
4th quarter	91·0	91·4	90·5	90·9	90·1	88·6	102·7	88·1	84·8	86·0	80·5	328·0	1·4
1966 1st quarter	90·8	90·7	91·0	90·8	90·9	90·0	102·9	88·4	85·5	87·3	82·9	302·1	1·3
2nd quarter	91·2	90·1	91·3	90·9	91·0	89·6	102·9	88·8	85·7	87·0	84·6	314·5	1·3
3rd quarter	92·0	92·7	91·5	92·1	91·2	90·1	102·7	89·1	86·1	87·5	82·7	352·2	1·5
4th quarter	92·7	92·2	90·8	91·9	89·3	87·2	101·9	89·1	85·1	85·6	83·0	444·1	1·8
1967 1st quarter	93·6	91·3	91·1	92·0	90·5	88·6	101·3	89·9	87·0	87·8	83·4	515·7	2·2
2nd quarter	94·3	94·2	92·1	93·5	91·4	89·5	101·3	90·9	88·5	89·3	83·8	544·7	2·3
3rd quarter	94·1	93·2	92·5	93·3	91·5	89·7	101·3	91·3	89·2	90·2	85·9	559·8	2·4
4th quarter	93·0	93·7	94·0	93·6	93·4	91·4	101·0	93·1	91·6	92·3	86·2	569·3	2·4
1968 1st quarter	96·4	95·3	96·5	96·0	96·5	94·8	100·8	95·8	94·9	96·0	86·8	573·7	2·4
2nd quarter	96·1	95·9	96·1	96·0	97·2	95·7	100·6	95·5	95·9	96·9	86·6	580·9	2·5
3rd quarter	98·1	98·4	96·4	97·6	97·5	96·3	100·6	95·8	96·2	97·1	85·9	576·6	2·4
4th quarter	98·7	99·1	97·0	98·3	98·1	96·9	100·7	96·3	96·5	97·4	86·6	567·6	2·4
1969 1st quarter	98·2	98·2	97·6	98·0	99·2	98·5	100·7	96·9	97·4	98·5	89·4	562·3	2·4
2nd quarter	97·9	98·2	98·6	98·2	100·5	100·2	100·7	97·9	98·8	99·8	90·2	557·2	2·4
3rd quarter	98·4	98·8	98·6	98·6	99·9	99·6	100·6	98·0	98·4	99·2	90·9	566·7	2·4
4th quarter	99·7	99·5	98·8	99·4	99·9	99·9	100·4	98·4	98·6	99·3	93·3	580·2	2·5
1970 1st quarter	98·3	97·5	99·4	98·4	99·7	99·8	100·4	99·0	98·9	99·3	96·8	586·9	2·5
2nd quarter	100·1	100·6	99·7	100·1	99·5	99·2	100·0	99·7	99·2	98·9	98·9	597·8	2·5
3rd quarter	100·4	101·5	100·3	100·7	100·2	100·1	99·8	100·5	100·4	100·2	100·6	606·8	2·6
4th quarter	101·2	100·4	100·6	100·8	100·4	100·9	99·7	100·9	101·2	101·5	103·5	617·5	2·6
1971 1st quarter	99·9	99·3	100·0	99·7	100·2	100·0	98·5	101·5	101·6	101·1	106·8	666·7	2·9
2nd quarter	101·3	100·2	101·3	100·9	100·9	100·3	98·4	103·0	103·8	103·2	109·1	748·6	3·3
3rd quarter	103·9	101·5	101·8	102·4	100·6	99·4	97·6	104·3	104·5	104·5	110·8	814·0	3·6
4th quarter	103·1	101·3	102·3	102·3	100·4	99·0	97·6	104·9	105·5	104·4	112·7	874·9	3·8
1972 1st quarter	102·0	99·5	101·4	101·0	98·0	98·4	98·2	103·3	103·7	104·8	117·2	906·1	4·0
2nd quarter	103·3	103·2	104·3	103·6	102·7	101·3	98·4	106·0	108·9	108·3	117·2	876·9	3·8
3rd quarter	103·0	102·7	104·3	103·4	102·4	101·6	98·7	105·7	108·6	108·7	121·1	847·7	3·7
4th quarter	105·0	104·9	106·1	105·3	105·4	104·8	99·2	107·0	111·7	112·2	123·6	789·4	3·4
1973 1st quarter	110·9	107·1	109·2	109·1	110·1	110·1	100·0	109·2	116·1	117·5	124·9	697·7	3·0
2nd quarter	109·1	108·5	108·7	108·8	110·0	109·9			115·7	116·9	127·2	633·5	2·8
3rd quarter	111·1	108·0	109·7	109·7	110·9	111·3			116·5	118·0	132·5	592·7	2·6
4th quarter					109·4	110·0			114·8	116·4		520·5	2·3

(1) These estimates are given to one decimal place but this does not imply that they can be regarded as accurate to the last digit shown.
(2) The earlier figures in this series have been adjusted to be consistent with Census of Employment data on which the later figures are based.
(3) Income data deflated by the price index implied by estimates based on expenditure data.
(4) The base used in calculating the percentage rate of unemployment is the estimate of total employees (employed and unemployed). Figures of employees in employment are now obtained from the Census of Employment, described on pages 5 to 7 of the January 1973 issue of the *Department of Employment Gazette*.

Main economic series *(continued)*

All series are seasonally adjusted unless otherwise stated

	Unfilled vacancies (GB) Adults only §	Basic hourly wage rates	Average earnings of all employees (GB) §	General index of retail prices		Wholesale prices index		Unit value index numbers (1)			Personal disposable income revalued at 1970 prices(2)§	Consumers' expenditure at 1970 prices §	Personal savings ratio (3)
				All items	All items except items of food whose prices show significant seasonal variations	Basic materials and fuel purchased by manufacturing industry (4)	Output All manufactured products Home sales	Exports	Imports	Terms of trade			
	n.s.a.	n.s.a.		n.s.a.	n.s.a.	n.s.a.	n.s.a.	n.s.a.	n.s.a.	n.s.a.			
	Monthly average Thousands	Jan. 1956 =100	Jan. 1970 =100	Jan. 1962=100		1970=100					£ million		Percentage
1962 1st quarter	187·3	133·6	..	100·2	100·2	76·9	76·9	75·9	76·9	98·7	7,019	6,485	7·5
2nd quarter	165·2	135·6	..	102·3	101·2	76·3	77·0	74·4	76·8	96·9	7,012	6,590	6·3
3rd quarter	141·3	137·3	..	101·9	101·9	75·3	77·3	75·1	77·5	96·9	7,116	6,562	7·6
4th quarter	128·6	138·3	..	101·8	102·5	76·0	77·6	75·0	77·9	96·3	7,227	6,632	8·3
1963 1st quarter	127·5	139·4	62·1	103·3	102·8	77·2	77·7	75·9	78·6	96·6	7,179	6,631	7·6
2nd quarter	136·8	140·9	64·0	103·9	103·0	77·4	77·9	76·3	79·1	96·5	7,350	6,873	6·5
3rd quarter	142·7	141·5	65·1	103·2	103·5	76·9	77·9	77·2	78·9	97·8	7,523	6,950	7·6
4th quarter	170·6	143·3	65·9	104·0	104·6	80·3	78·5	77·5	80·1	96·8	7,577	6,962	8·1
1964 1st quarter	199·9	146·1	67·4	104·9	105·4	80·6	79·1	77·3	80·7	95·8	7,608	7,015	7·8
2nd quarter	212·4	147·8	68·5	106·8	107·0	80·3	80·2	77·7	80·7	96·3	7,633	7,035	7·8
3rd quarter	228·4	149·5	69·9	107·7	108·3	81·1	80·7	78·5	80·7	97·3	7,741	7,081	8·5
4th quarter	243·7	151·0	70·9	108·6	109·3	82·5	81·2	78·6	81·3	96·7	7,757	7,143	7·9
1965 1st quarter	249·6	153·8	72·2	109·6	110·3	82·5	82·1	79·3	81·4	97·4	7,804	7,151	8·4
2nd quarter	270·4	156·1	73·3	112·4	112·6	82·2	83·4	79·5	81·4	97·7	7,780	7,115	8·5
3rd quarter	270·9	159·9	74·5	112·9	113·3	81·6	83·8	80·1	81·2	98·6	7,873	7,208	8·4
4th quarter	269·4	161·9	76·3	113·6	114·0	82·4	84·0	80·7	81·6	98·9	7,998	7,234	9·5
1966 1st quarter	275·8	166·0	77·6	114·4	114·8	83·9	84·8	81·8	82·0	99·8	8,303	7,338	11·6
2nd quarter	278·5	168·1	79·2	116·6	116·3	85·4	85·4	83·0	82·8	100·2	7,946	7,375	7·2
3rd quarter	259·4	169·8	79·6	117·0	117·4	84·0	86·1	83·6	82·2	101·7	7,907	7,288	7·8
4th quarter	205·3	169·9	79·6	117·9	118·1	83·4	85·9	83·6	82·3	101·6	7,976	7,257	9·0
1967 1st quarter	183·4	171·4	79·8	118·6	118·7	82·8	86·1	83·8	82·1	102·1	7,925	7,312	7·7
2nd quarter	166·5	172·9	80·7	119·6	119·2	82·3	86·1	83·9	81·4	103·1	8,152	7,403	9·2
3rd quarter	166·3	177·3	82·6	119·0	119·2	82·6	86·6	84·4	83·2	101·4	8,297	7,510	9·5
4th quarter	179·3	179·7	84·2	120·4	120·7	87·6	87·1	85·4	86·6	98·6	8,189	7,616	7·0
1968 1st quarter	180·5	184·8	85·9	122·1	122·2	92·3	88·7	88·9	92·0	96·6	8,404	7,807	7·1
2nd quarter	181·2	185·8	87·1	125·0	125·0	90·7	89·8	90·8	92·7	98·0	8,192	7,493	8·5
3rd quarter	187·6	187·7	89·0	125·7	126·1	91·0	90·3	92·3	94·1	98·1	8,251	7,605	7·8
4th quarter	202·0	191·0	91·0	127·2	127·6	91·8	91·0	92·8	94·6	98·1	8,286	7,651	7·7
1969 1st quarter	200·6	194·7	92·2	129·7	129·7	93·1	92·2	93·9	94·5	99·4	8,329	7,592	8·9
2nd quarter	200·8	195·6	94·1	131·8	131·0	94·3	92·6	93·9	95·5	98·3	8,214	7,665	6·7
3rd quarter	199·2	197·8	95·9	132·0	132·0	95·2	93·7	94·2	96·5	97·6	8,302	7,640	8·0
4th quarter	197·2	201·6	98·5	133·7	133·9	97·5	94·7	95·1	98·1	96·9	8,406	7,741	7·9
1970 1st quarter	194·2	209·0	101·6	136·2	136·0	99·2	96·7	98·9	99·6	99·3	8,328	7,715	7·3
2nd quarter	189·1	214·0	105·0	139·5	138·7	99·7	98·9	100·0	100·8	99·2	8,621	7,836	9·1
3rd quarter	185·1	219·5	108·3	141·1	141·3	99·8	100·9	102·0	100·8	101·2	8,717	7,923	9·1
4th quarter	174·3	228·3	111·9	144·0	144·6	101·4	103·4	102·3	100·6	101·7	8,701	7,930	8·9
1971 1st quarter	150·1	237·5	114·6	147·9	148·0	103·0	106·3	104·1	102·8	101·3	8,676	7,865	9·4
2nd quarter	129·6	242·4	117·2	153·2	152·8	104·9	108·7	105·3	106·0	99·3	8,694	8,008	7·9
3rd quarter	119·6	248·6	120·4	155·3	155·5	105·6	110·3	107·4	106·5	100·8	8,809	8,121	7·8
4th quarter	116·4	257·0	122·6	157·3	157·5	104·8	110·8	109·1	105·6	103·3	8,952	8,217	8·2
1972 1st quarter	123·8	265·9	126·3(5)	159·7	159·7	105·6	112·1	110·3	106·6	103·5	8,983	8,329	7·3
2nd quarter	135·1	272·0	130·6	162·7	162·5	106·1	113·5	110·8	107·4	103·2	9,454	8,462	10·5
3rd quarter	146·1	103·4(6)	135·1	165·4	165·1	109·4	115·6	114·1(7)	110·8(7)	103·0(7)	9,314	8,585	7·8
4th quarter	175·9	108·1	142·0	169·4	169·2	115·6	118·0	115·1	115·8	99·4	9,591	8,739	8·9
1973 1st quarter	228·9	108·9	143·8	172·4	171·4	126·0	119·5	118·7	122·2	97·1	9,683	8,977	7·3
2nd quarter	292·5	113·8	149·3	177·9	175·6	133·4	120·1(8)	122·9	132·2	93·0	9,863	8,824	10·5
3rd quarter	332·9	118·6	154·8	180·6	179·1	150·5	124·2	127·3	145·3	87·6	9,896	8,898	10·1
4th quarter	361·3	120·9		186·8	184·8	166·9	129·1						

(1) *Overseas Trade Statistics* basis. (2) Before providing for depreciation, stock appreciation and additions to tax reserves. (3) Personal saving, including additions to reserves, as a percentage of personal disposable income. (4) Revised method of calculation to include levies on certain imported foods from 3rd quarter 1971. (5) As industrial activity was severely disrupted by restricted electricity supplies, no enquiry was held in February. The index is therefore given as an average of the January and March figures.
(6) The current series is based on 31 July 1972=100; the hourly wage rates index based on January 1956=100 was 277·3 at that date.
(7) Affected by the dock strike. (8) See footnote (2) on page 30. n.s.a. = not seasonally adjusted.

Main economic series *(continued)*

All series are seasonally adjusted unless otherwise stated

	Volume of retail sales (GB) (1)	New registrations of cars (GB)	Changes in hire purchase and other instalment debt(2)	Gross domestic fixed capital formation						Investment in stocks(3) §		Engineering (4) industries	Construction industry
				Total §	Private sector	Public sector	Manufacturing industry §	Private dwellings	Public dwellings	Total	Manufacturing	Net new orders Home market	Orders received
	1971=100	Thousands	£ million	£ million at 1970 prices								1963=100	1970=100
1962 1st quarter	83·5	179·6	— 32	1,565	887	678	413	173	106	— 37	— 58	..	..
2nd quarter	84·1	195·8	— 13	1,610	913	697	403	173	113	17	15	..	..
3rd quarter	84·6	194·1	+ 5	1,608	907	701	385	170	131	55	9	..	..
4th quarter	84·6	215·3	+ 5	1,561	865	696	374	162	116	— 24	— 6	..	..
1963 1st quarter	84·7	211·0	+ 2	1,416	829	587	338	125	81	— 18	17	104	97
2nd quarter	86·4	254·0	+ 19	1,622	895	727	354	176	125	81	— 17	106	95
3rd quarter	88·0	260·7	+ 28	1,674	902	772	346	185	133	— 7	6	112	107
4th quarter	88·2	282·9	+ 34	1,739	956	783	353	193	140	141	97	113	94
1964 1st quarter	88·7	283·6	+ 41	1,804	998	806	369	195	153	176	133	117	104
2nd quarter	88·9	288·0	+ 40	1,855	1,028	827	392	202	163	270	196	126	112
3rd quarter	89·4	309·5	+ 45	1,911	1,060	851	395	205	157	207	130	123	115
4th quarter	90·4	309·6	+ 42	1,934	1,078	856	413	211	157	283	194	127	126
1965 1st quarter	91·0	307·4	+ 35	1,959	1,101	858	442	216	161	172	132	119	115
2nd quarter	91·1	264·2	+ 40	1,921	1,066	855	416	202	159	139	135	111	107
3rd quarter	91·8	272·0	+ 25	1,921	1,064	857	434	199	162	167	119	115	108
4th quarter	92·5	278·9	+ 13	2,006	1,100	906	440	200	181	124	74	120	99
1966 1st quarter	93·3	296·4	+ 3	1,974	1,096	878	450	194	178	123	103	122	102
2nd quarter	93·5	315·7	— 11	1,964	1,039	925	436	195	173	136	52	113	102
3rd quarter	92·5	247·5	— 54	2,018	1,072	946	449	189	193	167	149	117	106
4th quarter	91·9	205·8	— 73	2,027	1,054	973	445	187	206	— 12	11	115	99
1967 1st quarter	93·3	240·8	— 48	2,091	1,065	1,026	439	191	211	107	46	107	128
2nd quarter	93·4	268·0	— 39	2,184	1,127	1,057	452	199	214	127	24	120	116
3rd quarter	95·2	290·5	+ 16	2,163	1,103	1,060	425	210	212	38	11	117	112
4th quarter	96·4	317·3	+ 31	2,126	1,053	1,073	419	201	211	66	— 9	109	115
1968 1st quarter	98·7	324·2	+ 34	2,246	1,137	1,109	440	212	235	— 46	— 59	120	110
2nd quarter	95·8	245·2	— 8	2,217	1,150	1,067	434	214	220	170	91	122	106
3rd quarter	96·8	263·9	+ 12	2,225	1,204	1,021	453	206	221	195	153	126	106
4th quarter	97·3	283·6	+ 8	2,263	1,236	1,027	471	214	218	152	84	123	112
1969 1st quarter	96·9	233·7	— 16	2,279	1,263	1,016	481	203	227	157	140	133	102
2nd quarter	97·8	264·3	+ 1	2,235	1,257	978	504	197	210	107	83	134	99
3rd quarter	97·2	260·1	— 3	2,280	1,281	999	520	188	233	70	24	130	103
4th quarter	96·9	229·3	— 2	2,248	1,242	1,006	519	170	220	85	73	133	105
1970 1st quarter	98·6	258·6	+ 10	2,236	1,246	990	515	168	198	— 21	22	130	103
2nd quarter	99·0	285·8	+ 24	2,317	1,290	1,027	534	170	199	125	76	131	105
3rd quarter	99·5	277·6	+ 20	2,318	1,315	1,003	538	179	203	106	26	135	101
4th quarter	99·1	275·2	+ 30	2,352	1,273	1,079	542	185	201	47	51	130	91
1971 1st quarter	97·8	282·4	+ 13	2,299	1,214	1,085	511	192	193	114	10	122	105
2nd quarter	99·7	289·8	+ 37	2,332	1,326	1,006	498	202	195	—103	—113	125	111
3rd quarter	100·5	347·6	+107	2,318	1,331	987	491	210	182	— 18	— 68	140	108
4th quarter	102·1	381·7	+ 83	2,320	1,307	1,013	468	227	180	—	— 47	139	105
1972 1st quarter	102·1	371·9	+ 87	2,366	1,343	1,023	466	242	189	—136	—156	160	116
2nd quarter	104·6	439·8	+108	2,341	1,370	971	447	238	173	—104	—145	149	121
3rd quarter	107·2	418·5	+123	2,321	1,341	980	430	240	159	— 87	—125	170	104
4th quarter	109·5	432·7	+106	2,354	1,387	967	432	263	167	— 85	— 72	165	108
1973 1st quarter	111·8	454·6	+176	2,525	1,508	1,017	465	280	181	253	168	190	123
2nd quarter	108·0	406·5	+ 80	2,374	1,443	931	447	289	167	213	87	192	111
3rd quarter	110·5	428·7	+109	2,525	1,492	1,033	482	290	196	138	91	197	111
4th quarter	112·3	355·7	+ 75										

(1) This index is given to one decimal place but this does not imply that it can be regarded as accurate to the last digit shown. See also footnote (2) on page 11.

(2) Credit extended by finance houses and retailers, i.e. durable goods shops and department stores *plus* (from 1965) other general stores, general mail order houses and the non-durable goods departments of co-operative societies.

(3) Value of physical increase in stocks and work in progress.

(4) Mechanical, instrument and electrical engineering (SIC Orders VII, VIII and IX). See also page 25.

Main economic series *(continued)*

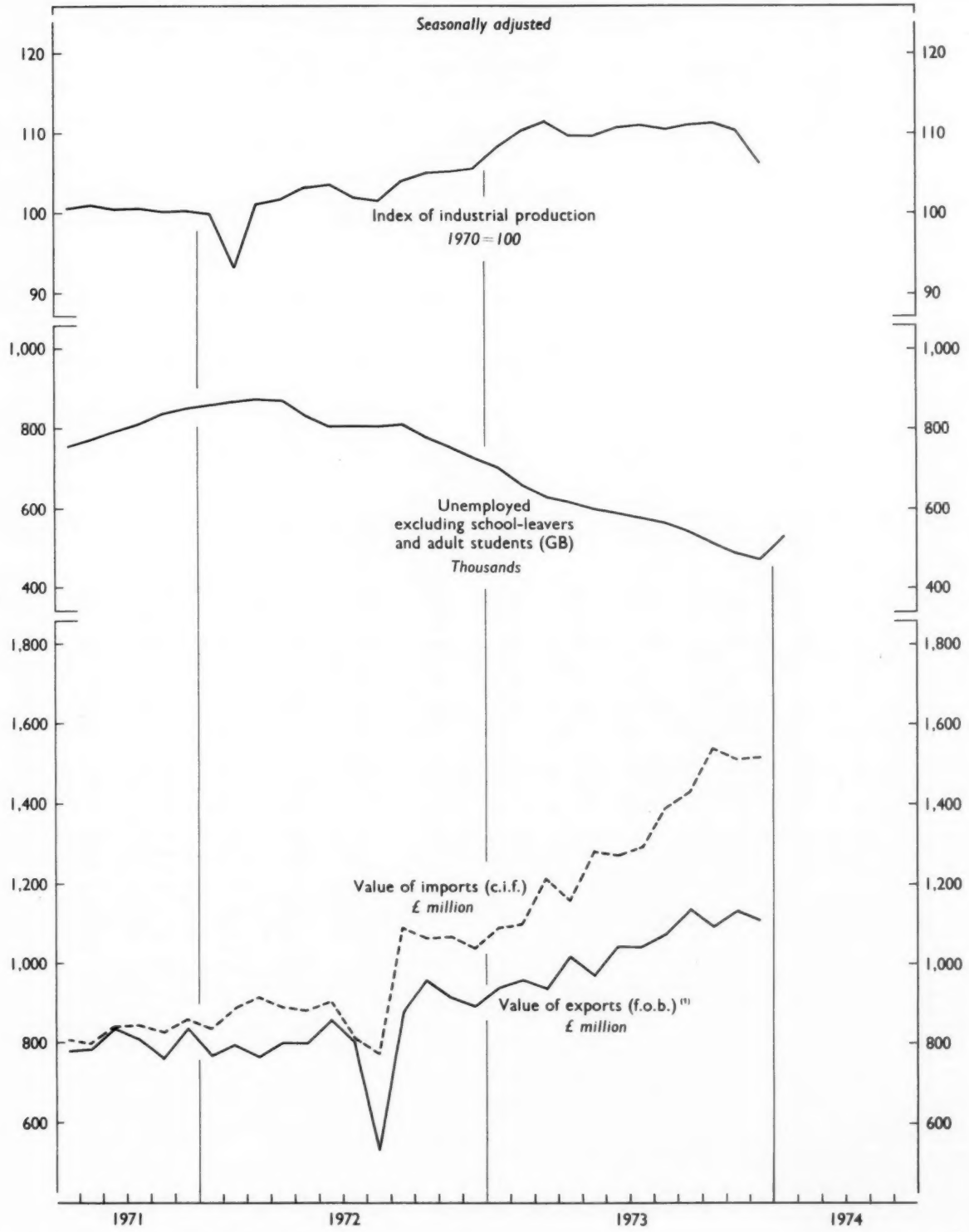
All series are seasonally adjusted unless otherwise stated

	Stock ratios		Change in money stock(1)		Domestic credit expansion	United Kingdom banking sector			Balance of payments		External trade (2)	
	Total stocks to gross domestic product (Expenditure)	Manufacturing stocks to output	M_1	M_3		Change in deposits of domestic sectors	Lending to Public sector	Lending to Private sector (3)	Current balance	Total currency flow n.s.a.	Volume of exports	Volume of imports
	End-1969=100		£ million								1970=100	
1962 1st quarter	..	..	..	..	..	..	..	..	+ 29	+137	..	..
2nd quarter	..	..	..	..	..	..	..	..	+ 48	+ 84	..	..
3rd quarter	..	..	..	..	..	..	..	..	+ 12	— 36	..	..
4th quarter	..	..	..	..	..	..	..	..	+ 33	+ 7	..	..
1963 1st quarter	100	105	..	50	145	..	..	..	+ 54	— 86	67·3	65·8
2nd quarter	96	101	180	246	350	232	167	196	+ 35	+ 50	69·5	68·0
3rd quarter	95	98	131	177	217	153	138	187	+ 26	+ 6	70·5	70·9
4th quarter	94	97	179	237	336	220	56	146	+ 9	— 28	71·7	72·6
1964 1st quarter	95	95	47	110	362	59	— 58	164	— 82	+ 1	71·6	76·2
2nd quarter	94	97	77	173	363	152	44	220	— 64	+ 12	72·6	76·3
3rd quarter	96	98	71	214	377	186	98	276	—112	—126	70·3	77·6
4th quarter	97	98	39	156	461	113	—398	352	—124	—582	72·5	78·7
1965 1st quarter	98	99	14	122	331	82	—148	186	—	—166	72·8	74·0
2nd quarter	99	101	108	315	318	272	175	122	— 43	—166	74·7	78·0
3rd quarter	99	102	12	183	140	158	167	25	— 14	—196	75·8	79·1
4th quarter	99	102	141	341	379	280	260	109	+ 8	+175	78·0	79·3
1966 1st quarter	100	101	158	285	361	256	122	111	— 43	+ 48	77·7	81·1
2nd quarter	100	102	— 37	62	261	15	— 54	— 26	— 29	—163	74·5	77·7
3rd quarter	100	103	— 25	156	159	141	38	26	— 11	—488	78·8	81·3
4th quarter	100	107	—199	— 36	— 69	— 14	111	— 89	+167	+ 56	82·3	76·3
1967 1st quarter	99	106	260	290	244	246	395	42	+ 19	+509	84·1	84·2
2nd quarter	99	105	130	312	278	284	271	— 60	— 71	— 12	80·5	84·7
3rd quarter	100	105	167	421	684	400	24	317	— 31	—506	78·1	83·9
4th quarter	101	103	102	321	594	291	—118	211	—233	—662	69·2	87·3
1968 1st quarter	98	98	23	207	650	147	—227	107	— 92	—519	87·7	94·0
2nd quarter	99	98	162	435	748	410	75	227	—102	—521	84·2	92·1
3rd quarter	98	100	157	228	203	221	374	49	— 37	— 24	89·9	95·3
4th quarter	99	100	76	272	395	219	—186	145	— 53	—346	90·4	94·3
1969 1st quarter	100	100	— 92	254	128	240	— 66	217	+ 17	+272	91·0	94·0
2nd quarter	101	99	—162	—187	—293	—195	—204	— 80	+ 95	+ 82	96·0	96·6
3rd quarter	101	100	— 4	166	25	162	—307	236	+163	— 47	102·0	96·1
4th quarter	100	100	257	270	— 6	155	209	57	+170	+436	101·3	94·9
1970 1st quarter	101	100	68	127	—259	71	94	286	+255	+915	100·2	95·9
2nd quarter	100	102	313	573	472	535	172	366	+136	+227	99·5	101·3
3rd quarter	101	101	97	410	527	323	163	188	+ 84	—202	94·8	97·9
4th quarter	100	101	319	456	283	399	567	— 31	+217	+347	105·5	104·9
1971 1st quarter	102	102	424	566	80	463	234	230	+145	+973	99·8	103·8
2nd quarter	100	100	104	313	32	291	295	55	+288	+634	111·7	104·6
3rd quarter	97	101	329	473	337	419	432	603	+380	+668	113·4	103·9
4th quarter	98	101	179	1,033	714	992	758	756	+248	+953	111·3	107·1
1972 1st quarter	98	100	418	964	1,092	826	—466	1,436	+ 79	+ 57	109·4	112·8
2nd quarter	97	95	452	1,532	2,147	1,407	—697	1,565	+131	—1,045	113·7	113·9
3rd quarter	96	94	162	1,031	1,324	936	— 45	1,007	—110	— 79	99·7(4)	110·9(4)
4th quarter	94	90	471	1,772	2,320	1,635	182	1,503	— 17	—198	122·7	126·9
1973 1st quarter	90	87	14	1,503	1,658	1,365	357	1,220	—187	+ 69	122·6	131·2
2nd quarter	93	88	803	1,291	1,323	1,162	482	945	—208	+377	126·3	131·5
3rd quarter	92	87	—371	2,446	2,977	2,442	561	1,763	—317	—258	129·3	135·7
4th quarter	..											

(1) An article on the definitions of money stock was published in the March 1972 issue of *Economic Trends*.
(2) *Overseas Trade Statistics* basis.
(3) Excluding foreign currencies.
(4) Affected by the dock strike.
n.s.a.=not seasonally adjusted.

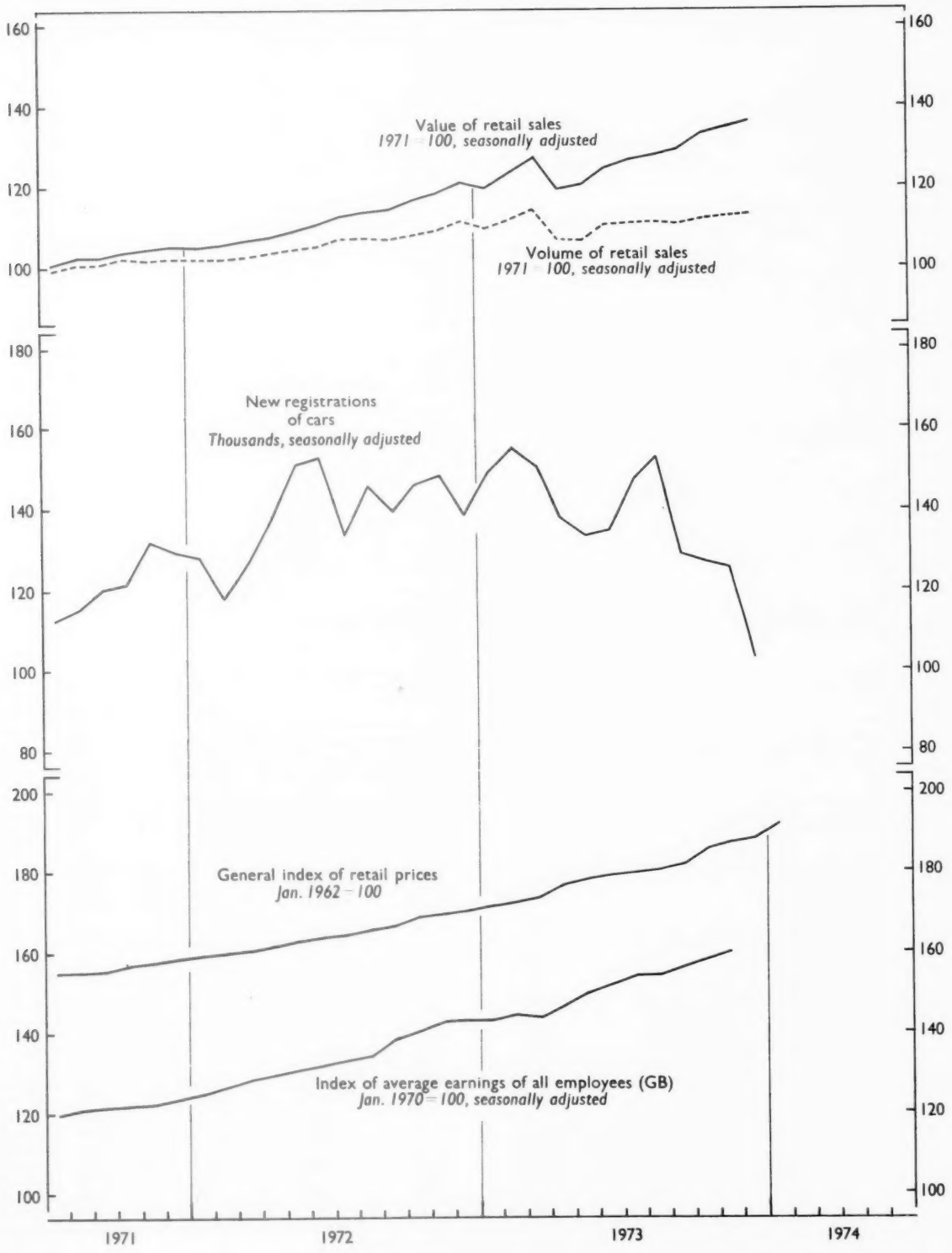
Latest developments

The charts in this section show key monthly indicators on a larger time scale than that used for the longer periods covered in other sections.

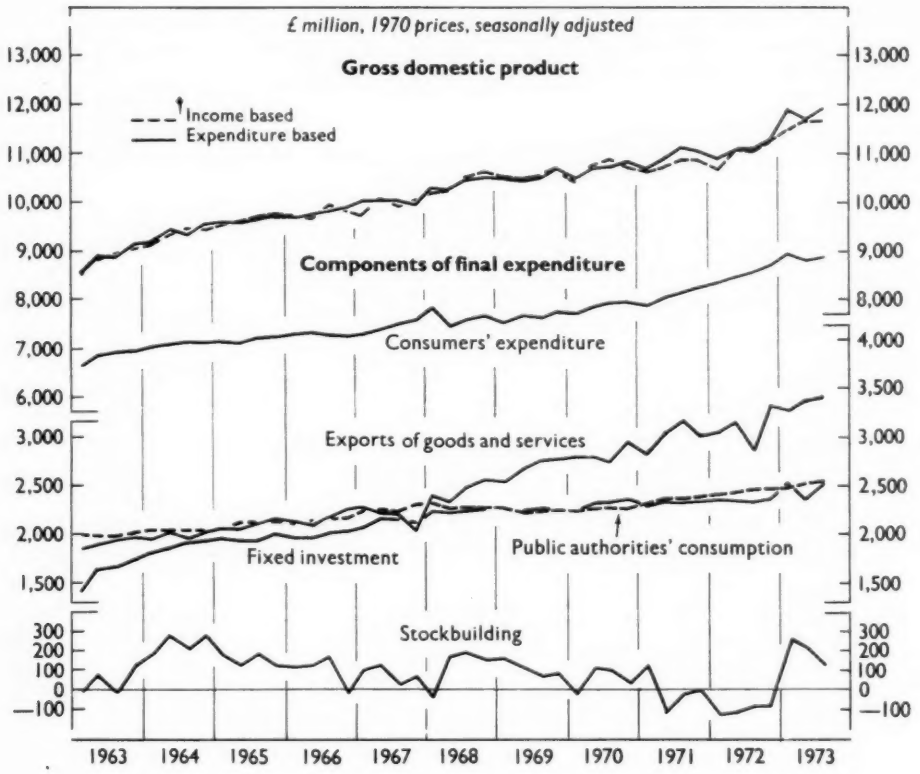


(1) *Overseas Trade Statistics* basis, before adjustment for recording of exports.

Latest developments



Gross domestic product and components of final expenditure



Gross domestic product is a measure of the aggregate output of the economy. When estimated from expenditure data it equals the sum of consumers' expenditure, exports, fixed investment, public authorities' consumption and stockbuilding, *less* imports (the products of other countries) and an adjustment to exclude taxes on expenditure and include subsidies. Gross domestic product at factor cost can also be estimated from output or from income data.

£ million, 1970 prices, seasonally adjusted

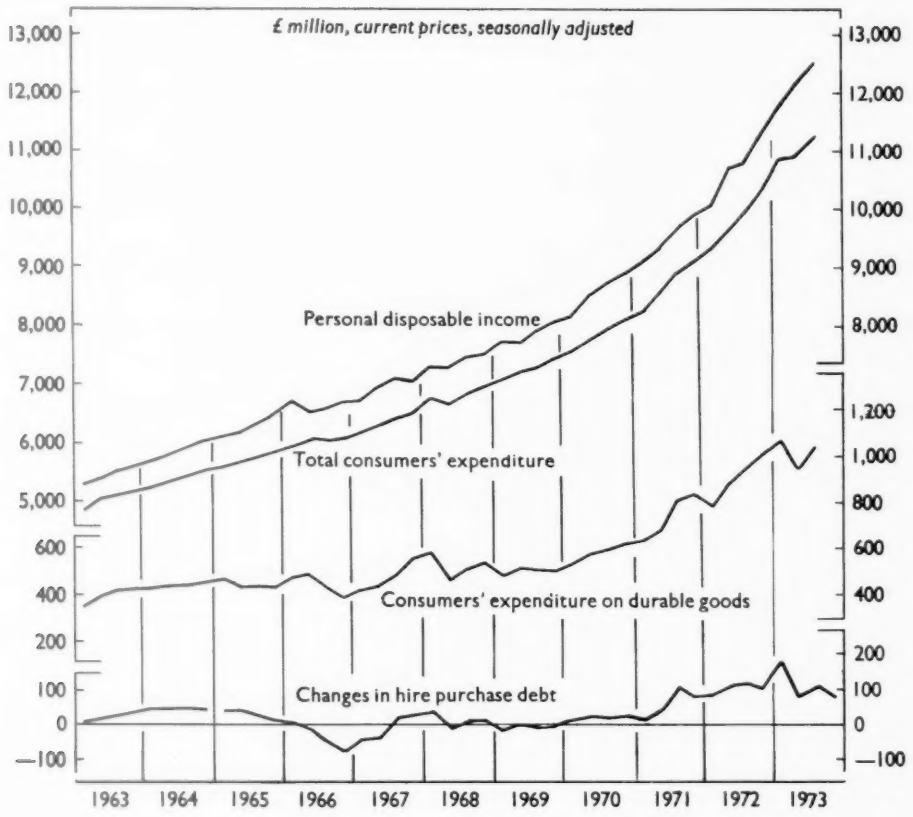
	Gross domestic product at factor cost (expenditure based)	Final expenditure on goods and services at market prices						Imports of goods and services §
		Total	Consumers' expenditure	Public authorities' consumption	Fixed investment	Stockbuilding	Exports of goods and services §	
1969 1st quarter ..	10,501	14,829	7,592	2,263	2,279	157	2,538	2,548
2nd quarter ..	10,471	14,900	7,665	2,221	2,235	107	2,672	2,601
3rd quarter ..	10,522	14,980	7,640	2,238	2,280	70	2,752	2,622
4th quarter ..	10,662	15,085	7,741	2,254	2,248	85	2,757	2,584
1970 1st quarter ..	10,514	14,973	7,715	2,244	2,236	— 21	2,799	2,602
2nd quarter ..	10,708	15,359	7,836	2,283	2,317	125	2,798	2,761
3rd quarter ..	10,736	15,362	7,923	2,290	2,318	106	2,725	2,697
4th quarter ..	10,830	15,540	7,930	2,278	2,352	47	2,933	2,812
1971 1st quarter ..	10,684	15,404	7,865	2,315	2,299	114	2,811	2,816
2nd quarter ..	10,838	15,649	8,008	2,360	2,332	—103	3,052	2,874
3rd quarter ..	11,111	15,950	8,121	2,363	2,318	— 18	3,166	2,832
4th quarter ..	11,033	15,957	8,217	2,392	2,320	—	3,028	2,876
1972 1st quarter ..	10,908	16,031	8,329	2,410	2,366	—136	3,062	3,050
2nd quarter ..	11,051	16,295	8,462	2,426	2,341	—104	3,170	3,096
3rd quarter ..	11,018	16,151	8,585	2,473	2,321	— 87	2,859	3,021
4th quarter ..	11,235	16,803	8,739	2,477	2,354	— 85	3,318	3,382
1973 1st quarter ..	11,866	17,541	8,977	2,489	2,525	253	3,297	3,410
2nd quarter ..	11,672	17,320	8,824	2,516	2,374	213	3,393	3,408
3rd quarter ..	11,881	17,510	8,898	2,540	2,525	138	3,409	3,393
4th quarter(¹)			(8,950)				(3,351)	(3,567)

† Income data deflated by the price index implied by estimates based on expenditure data.

(¹) The figures in brackets are preliminary estimates and are partially forecast, being based on incomplete data. At this stage, estimates of the latest quarterly changes are expected to differ on average by about £30 million (consumers' expenditure) and about £10 million (exports and imports) from the quarterly estimates subsequently published in the national income and expenditure article.

Personal disposable income, spending and borrowing

The monetary resources at the disposal of consumers consist of their disposable income *plus* their borrowing e.g. through increases in hire purchase debt. Much of this borrowing is for the purchase of consumer durables.

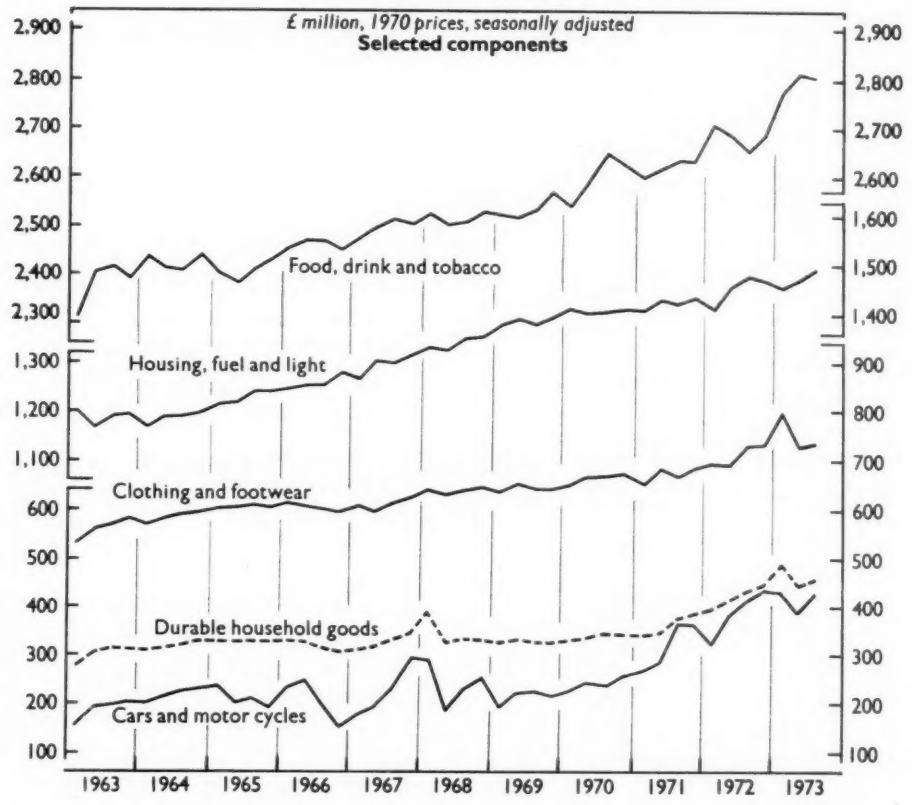


£ million, current prices, seasonally adjusted

	Personal disposable income	Consumers' expenditure		Changes in hire purchase and other instalment debt (²)
		Total	Durable goods(¹)	
1969 1st quarter	7,737	7,052	481	— 16
2nd quarter	7,724	7,207	520	+ 1
3rd quarter	7,898	7,268	518	— 3
4th quarter	8,080	7,441	515	— 2
1970 1st quarter	8,154	7,555	535	+ 10
2nd quarter	8,550	7,772	573	+ 24
3rd quarter	8,754	7,957	591	+ 20
4th quarter	8,909	8,120	623	+ 30
1971 1st quarter	9,086	8,236	639	+ 13
2nd quarter	9,358	8,619	684	+ 37
3rd quarter	9,655	8,900	806	+107
4th quarter	9,897	9,083	814	+ 83
1972 1st quarter	10,051	9,320	782	+ 87
2nd quarter	10,743	9,616	878	+108
3rd quarter	10,799	9,954	949	+123
4th quarter	11,384	10,373	1,007	+106
1973 1st quarter	11,716	10,862	1,059	+176
2nd quarter	12,181	10,898	949	+ 80
3rd quarter	12,506	11,245	1,040	+109
4th quarter				+ 75

(¹) Cars, motor cycles and durable household goods. (²) See footnote (²) on page 4.

Consumers' expenditure



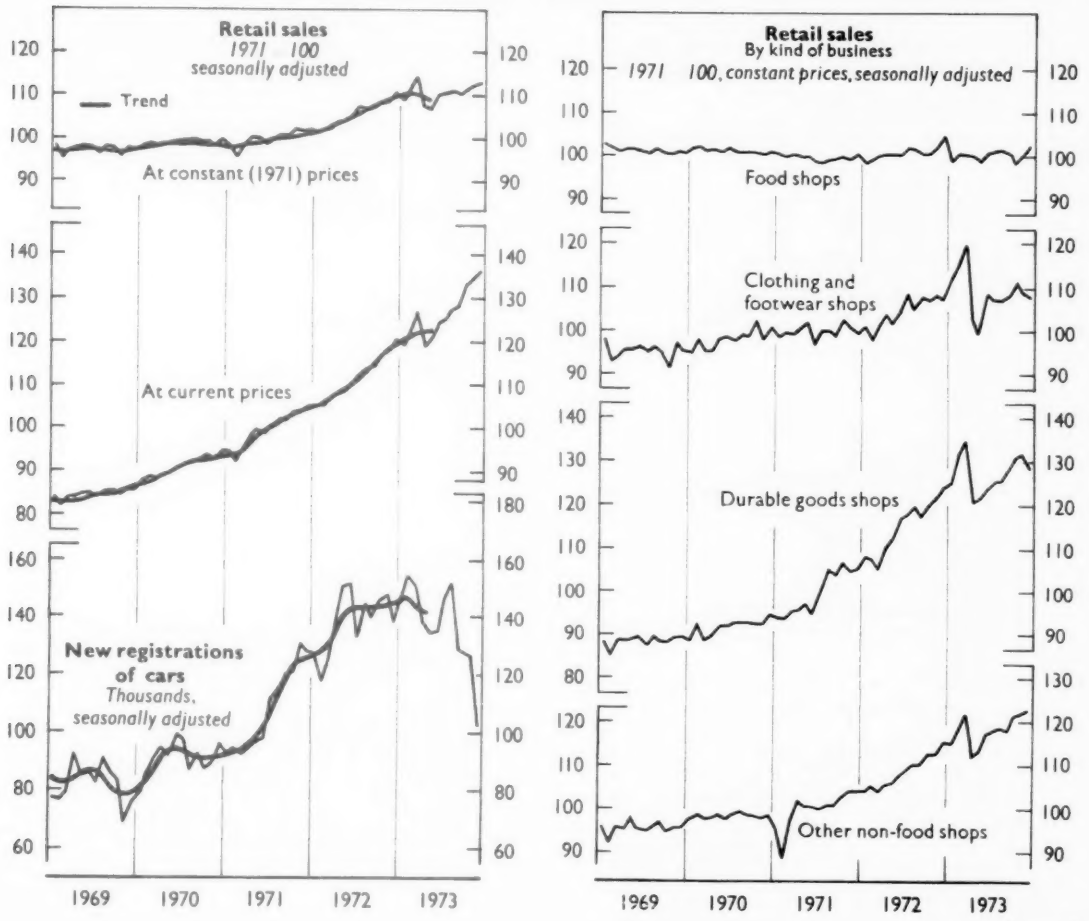
£ million, 1970 prices, seasonally adjusted

	Food, drink and tobacco	Housing, fuel and light	Clothing, including footwear	Durable household goods	Cars and motor cycles
1969 1st quarter	2,523	1,379	639	326	192
2nd quarter	2,520	1,389	652	334	221
3rd quarter	2,536	1,379	643	327	223
4th quarter	2,566	1,396	643	326	219
1970 1st quarter	2,540	1,410	653	331	227
2nd quarter	2,587	1,402	666	336	244
3rd quarter	2,647	1,405	670	344	239
4th quarter	2,622	1,411	677	342	259
1971 1st quarter	2,600	1,407	653	340	268
2nd quarter	2,620	1,429	681	347	288
3rd quarter	2,635	1,420	668	378	363
4th quarter	2,634	1,432	682	384	362
1972 1st quarter	2,711	1,412	697	396	324
2nd quarter	2,686	1,455	692	415	381
3rd quarter	2,656	1,475	732	433	417
4th quarter	2,689	1,468	735	445	437
1973 1st quarter	2,772	1,455	799	489	432
2nd quarter	2,811	1,470	729	443	382
3rd quarter	2,803	1,493	737	459	426
4th quarter (1)	(2,829)	(1,487)	743	470	(392)

(1) The figures in brackets are preliminary estimates and are partially forecast, being based on incomplete data.

Retail sales, new registrations of cars (Great Britain)

Retail sales cover about half of consumers' expenditure; purchases of new cars are a relatively small but volatile element in expenditure.

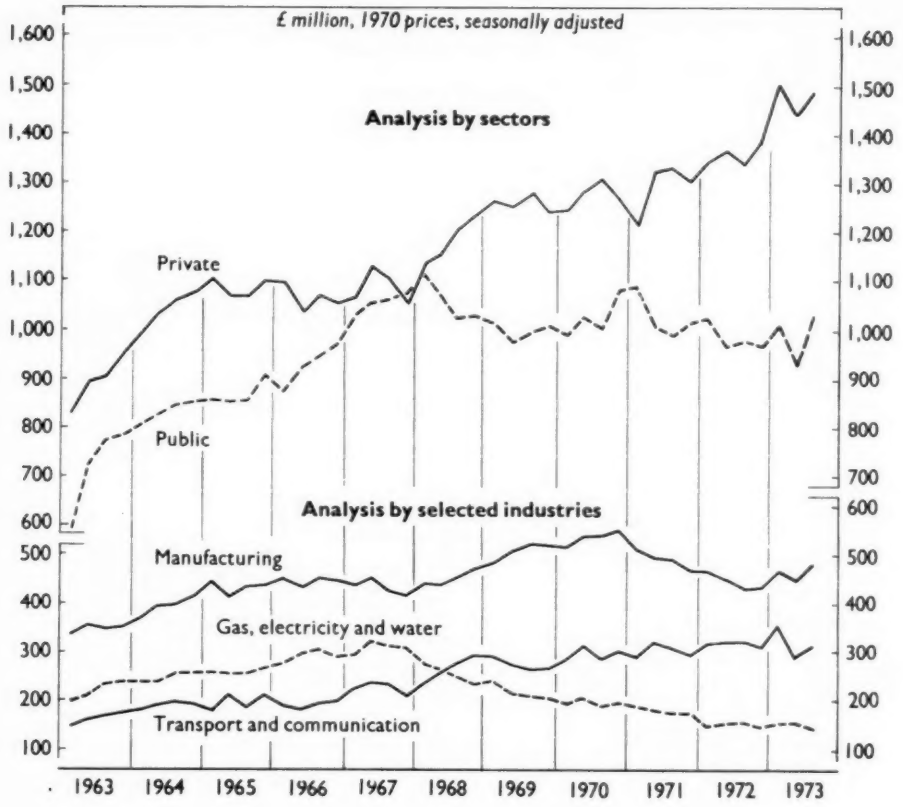


Seasonally adjusted

	Index numbers of retail sales Weekly average 1971=100						New registrations of cars §
	Total § (1)	Food shops § (1)	Clothing and footwear shops §	Durable goods shops §	Other non-food shops §	Total § (1)	
	At constant prices					At current prices	Thousands
Estimated sales in 1971 (£ million)	*15,895*	*6,693*	*2,314*	*1,801*	*5,087*	*15,895*	
1971 1st quarter	97·8	100·5	99	95	95	94·5	282
2nd quarter	99·7	99·8	100	96	101	99·2	290
3rd quarter	100·5	99·6	100	104	101	101·7	348
4th quarter	102·1	100·2	101	106	104	104·6	382
1972 1st quarter	102·1	99·7	100	107	104	106·0	372
2nd quarter	104·6	101·0	104	114	107	109·1	440
3rd quarter	107·2	101·9	108	118	110	113·9	419
4th quarter	109·5	103·3	107	122	114	118·9	433
1973 1st quarter(2)	111·8	100·5	116	131	118	123·6	455
2nd quarter	108·0	100·5	104	122	115	121·7	407
3rd quarter	110·5	101·6	108	127	118	127·6	429
4th quarter	112·3	101·4	109	130	122	134·7	356
October	111·7	99·3	111	131	121	133·0	127
November	112·3	101·1	109	132	122	134·5	126
December	112·9	103·2	108	129	123	136·2	103

(1) These indices are given to one decimal place, but this does not imply that they can be regarded as accurate to the last digit shown.
(2) The figures from 1st quarter 1973 have been revised.

Fixed investment



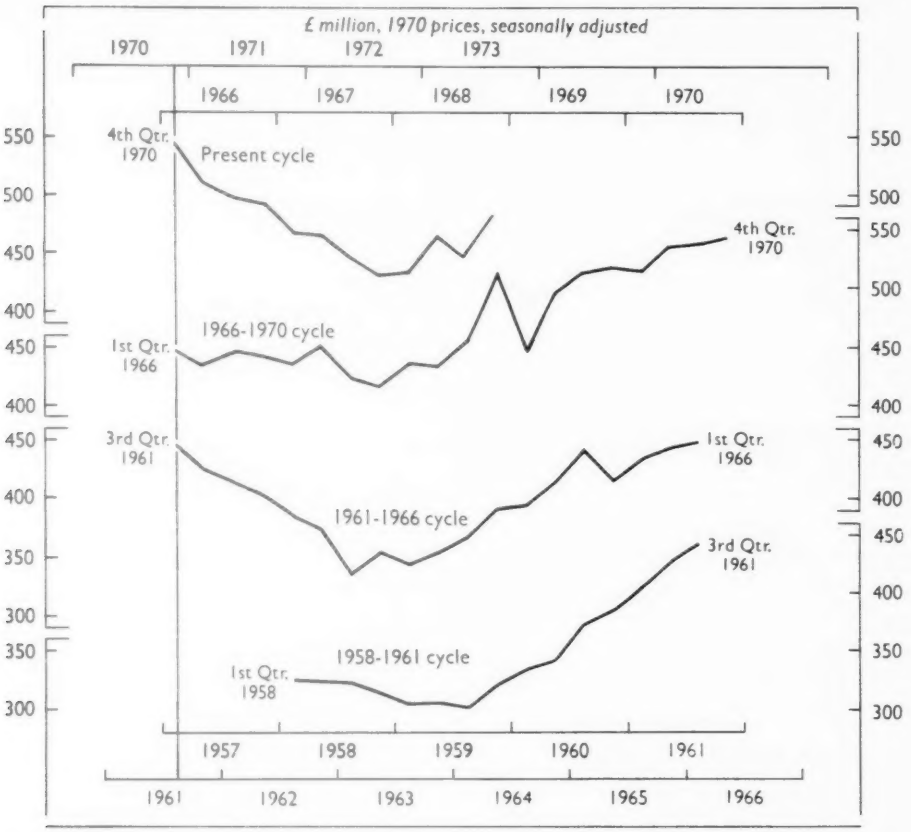
The investment cycle occurs mainly in manufacturing industry.

£ million, 1970 prices, seasonally adjusted

	Sectors		Selected industries		
	Private	Public	Manufacturing §	Gas, electricity and water	Transport and communication
1969 1st quarter	1,263	1,016	481	240	289
2nd quarter	1,257	978	504	216	272
3rd quarter	1,281	999	520	208	263
4th quarter	1,242	1,006	519	205	267
1970 1st quarter	1,246	990	515	198	281
2nd quarter	1,290	1,027	534	201	311
3rd quarter	1,315	1,003	538	186	287
4th quarter	1,273	1,079	542	198	301
1971 1st quarter	1,214	1,085	511	186	291
2nd quarter	1,326	1,006	498	180	321
3rd quarter	1,331	987	491	178	308
4th quarter	1,307	1,013	468	177	294
1972 1st quarter	1,343	1,023	466	149	319
2nd quarter	1,370	971	447	156	321
3rd quarter	1,341	980	430	155	323
4th quarter	1,387	967	432	146	311
1973 1st quarter	1,508	1,017	465	153	359
2nd quarter	1,443	931	447	153	288
3rd quarter	1,492	1,033	482	142	312
4th quarter					

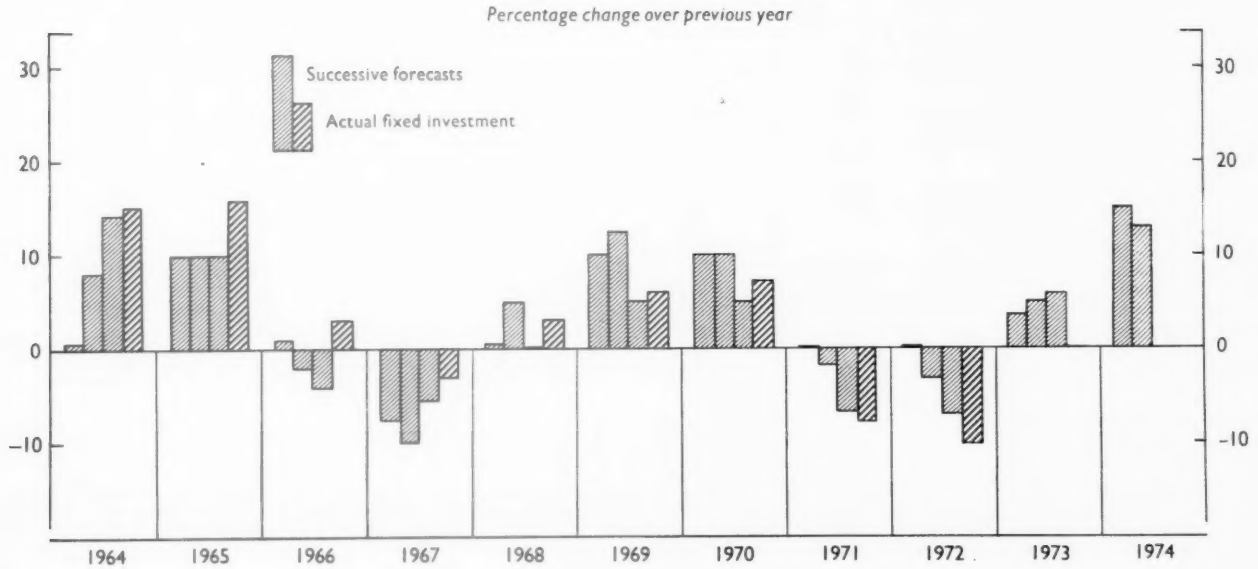
Fixed investment

Present and previous cycles of fixed investment in manufacturing industry

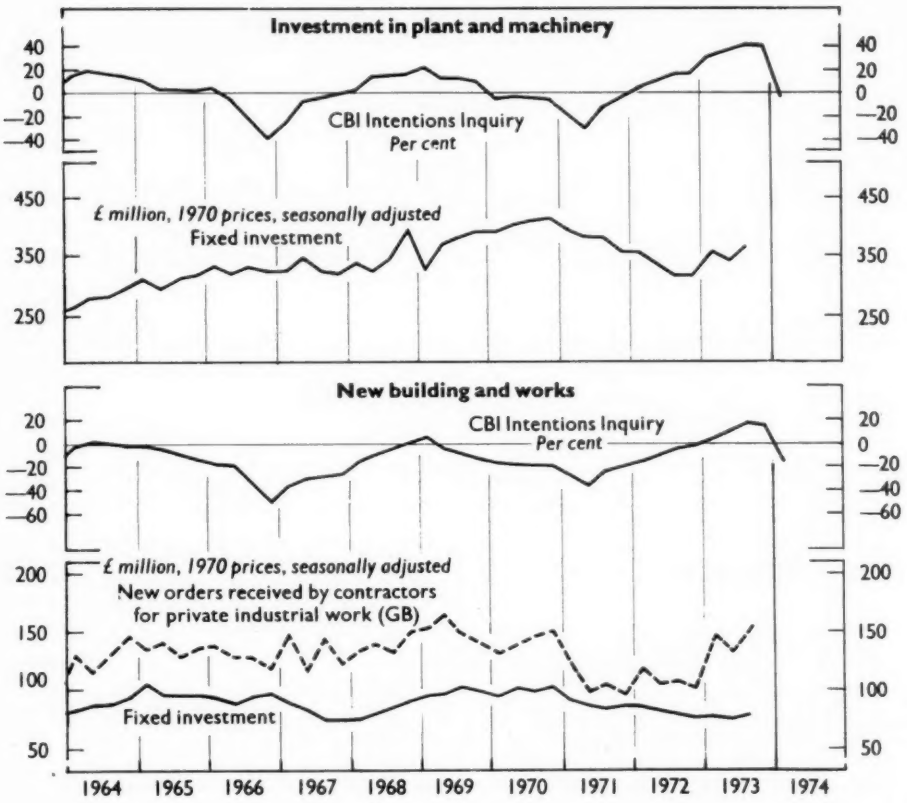


Department of Trade and Industry inquiry into investment intentions in manufacturing industry

For each year there have usually been three successive forecasts: the first in the preceding summer, the second at the end of the previous year and the third in the summer of the year concerned. Changes for the years before 1966 are in terms of current prices; those for later years are expressed in volume terms, after making an approximate allowance for price changes.



Other forward-looking indicators of fixed investment by manufacturing industry

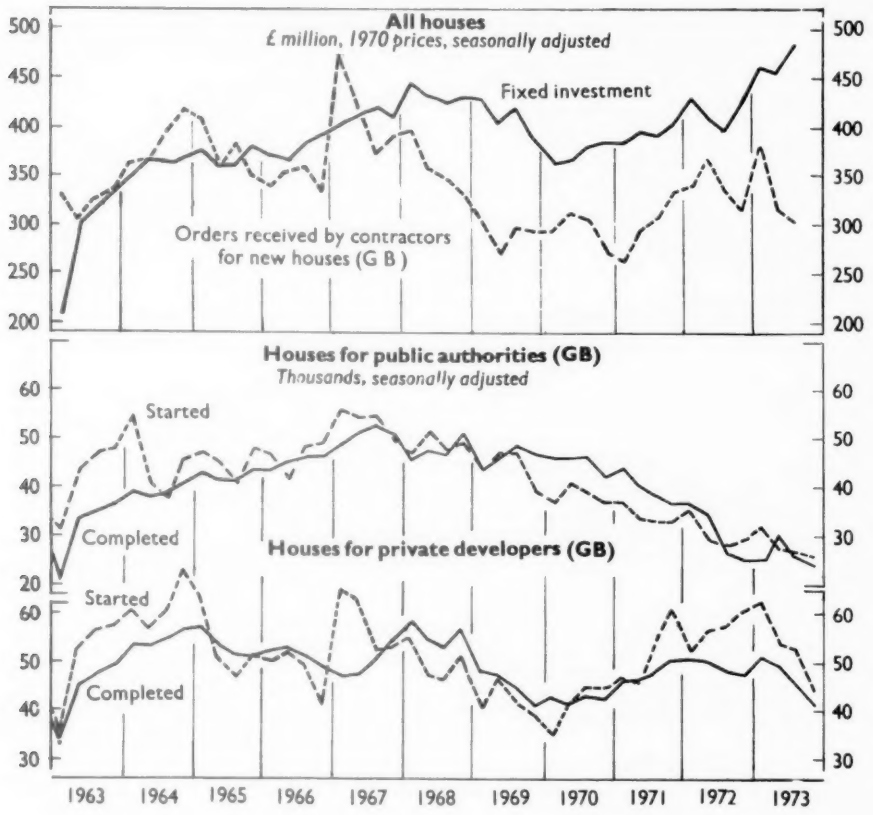


Turning points in the CBI Intentions Inquiry and in the value of orders received by contractors for private industrial work anticipate turning points in fixed investment.

	Plant and machinery in manufacturing industry		New building and works in manufacturing industry		New orders received by contractors for private industrial work (GB)
	CBI Intentions Inquiry	Fixed investment	CBI Intentions Inquiry	Fixed investment	
	Per cent (1)	£ million, 1970 prices, seasonally adjusted	Per cent (1)	£ million, 1970 prices, seasonally adjusted	
1970 1st quarter	— 5	391·6	—18	93·8	130
2nd quarter	— 3	404·9	—20	100·0	138
3rd quarter	..	410·5	..	98·4	145
4th quarter	— 8	412·4	—21	101·2	150
1971 1st quarter	(2)	393·9	(2)	90·4	121
2nd quarter	—31	384·4	—37	86·8	98
3rd quarter	—13	381·9	—25	82·4	104
4th quarter	..	355·0	..	85·1	96
1972 1st quarter	3	353·7	—17	83·4	119
2nd quarter	9	335·3	—11	81·0	104
3rd quarter	16	318·3	— 4	79·2	107
4th quarter	17	319·9	— 2	75·3	100
1973 1st quarter	30	352·5	4	77·5	147
2nd quarter	35	342·0	11	73·5	131
3rd quarter	39	368·3	18	79·7	158
4th quarter	38		16		
1974 1st quarter	— 3		—15		
2nd quarter					
3rd quarter					
4th quarter					

(1) Percentage of firms expecting to authorise more in next 12 months *less* percentage expecting to authorise less.
Figures relate to Inquiries in February, June and October of each year until 1972, when they are held in the first month of each quarter.
(2) No Inquiry was held in February 1971 because of the postal strike.

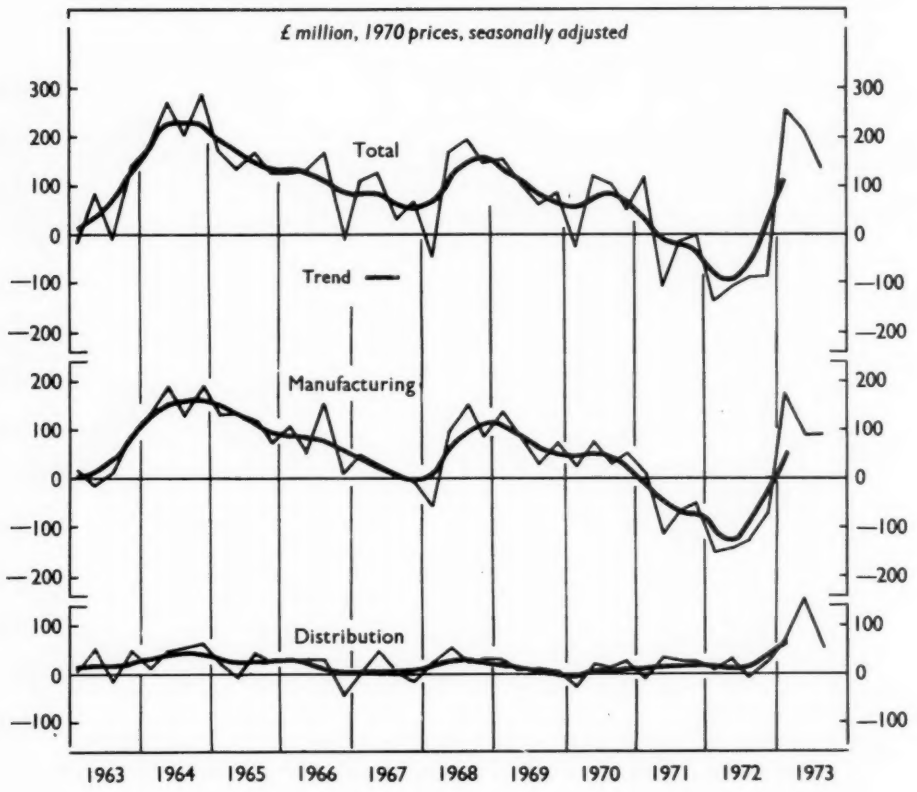
Forward-looking indicators of fixed investment in dwellings



Seasonally adjusted

	Orders received by contractors for new houses (GB)	Fixed investment in dwellings	Houses for public authorities (GB) §		Houses for private developers (GB) §	
			Started	Completed	Started	Completed
	£ million, 1970 prices		Thousands			
1969 1st quarter	303	430	43·8	43·8	40·6	48·3
2nd quarter	268	407	47·1	46·1	46·8	47·6
3rd quarter	296	421	47·1	48·5	41·2	44·7
4th quarter	293	390	38·6	46·7	38·2	41·1
1970 1st quarter	291	366	36·4	46·0	35·3	43·0
2nd quarter	308	369	40·7	46·0	41·7	41·5
3rd quarter	302	382	39·9	46·1	44·4	43·6
4th quarter	270	386	37·1	42·0	43·7	42·2
1971 1st quarter	260	385	36·7	44·0	47·0	46·4
2nd quarter	294	397	33·6	40·3	45·4	46·5
3rd quarter	308	392	33·1	38·1	54·0	48·4
4th quarter	334	407	33·2	36·5	60·9	50·3
1972 1st quarter	340	431	35·8	36·5	52·5	50·7
2nd quarter	368	411	29·4	34·1	56·3	50·2
3rd quarter	334	399	28·1	26·4	57·8	48·1
4th quarter	314	430	29·7	25·8	60·8	47·3
1973 1st quarter	381	461	31·9	25·9	63·4	51·2
2nd quarter	317	456	27·8	30·8	54·2	49·2
3rd quarter	300	486	27·0	26·6	53·3	45·0
4th quarter			26·1	24·2	44·0	40·7

Stock changes



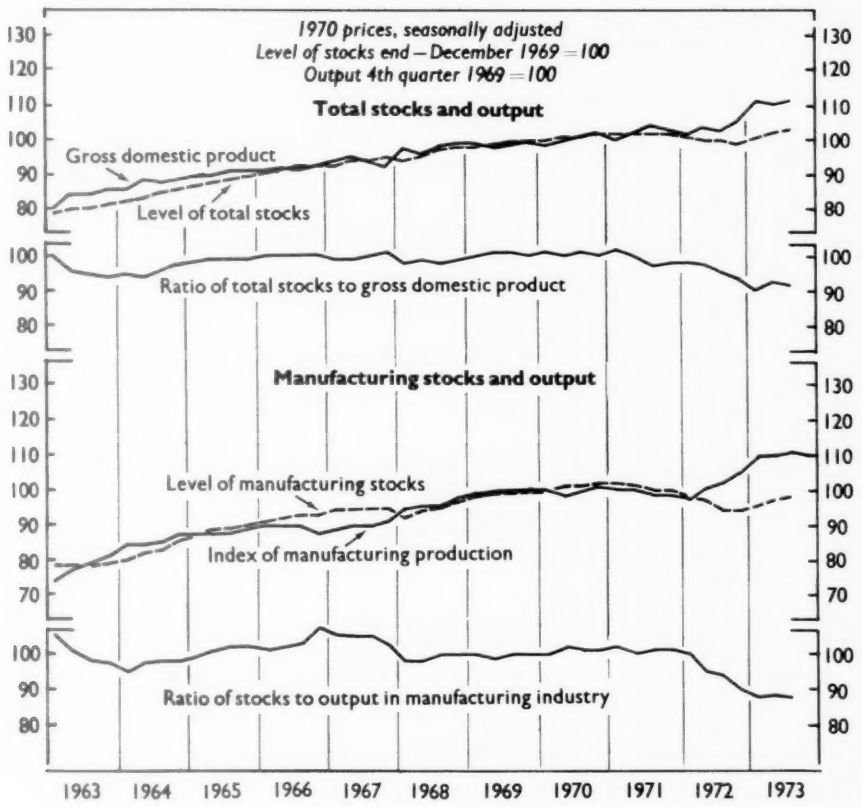
Stock changes are the value of physical increase or decrease of stocks and work in progress at constant prices, for the turing economy, for manufac- whole and for wholesale and retail distribution.

£ million, 1970 prices, seasonally adjusted

	Total §	Manufacturing §	Distribution
1969 1st quarter	157	140	34
2nd quarter	107	83	6
3rd quarter	70	24	12
4th quarter	85	73	3
1970 1st quarter	— 21	22	—26
2nd quarter	125	76	20
3rd quarter	106	26	13
4th quarter	47	51	23
1971 1st quarter	114	10	— 8
2nd quarter	—103	—113	33
3rd quarter	— 18	— 68	24
4th quarter	—	— 47	24
1972 1st quarter	—136	—156	6
2nd quarter	—104	—145	28
3rd quarter	— 87	—125	— 4
4th quarter	— 85	— 72	20
1973 1st quarter	253	168	70
2nd quarter	213	87	150
3rd quarter	138	91	53
4th quarter			

Relationship of stocks and output (stock/output ratios)

The level of stocks rises broadly with the level of output but the stock cycle lags behind the output cycle; the ratio of stocks to output therefore fluctuates: stocks are sometimes high in relation to output, sometimes low.

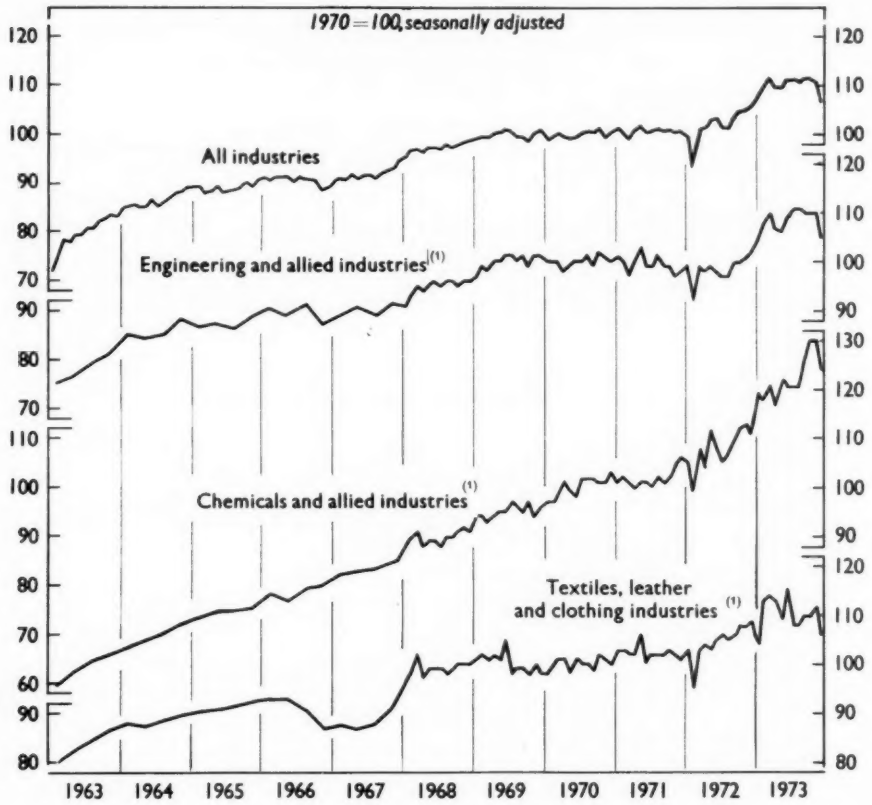


1970 prices, seasonally adjusted { Level of stocks end-Dec. 1969 = 100 / Output 4th quarter 1969 = 100

	Level of total stocks	Gross domestic product (1)	Ratio of total stocks to gross domestic product	Level of manufacturing stocks	Index of manufacturing production	Ratio of stocks to output in manufacturing industry
1969 1st quarter	98	99	100	98	99	100
2nd quarter	99	98	101	99	100	99
3rd quarter	100	99	101	99	100	100
4th quarter	100	100	100	100	100	100
1970 1st quarter	100	99	101	100	100	100
2nd quarter	101	100	100	101	99	102
3rd quarter	101	101	101	101	100	101
4th quarter	102	102	100	102	101	101
1971 1st quarter	102	100	102	102	100	102
2nd quarter	102	102	100	101	100	100
3rd quarter	102	104	97	100	99	101
4th quarter	102	103	98	100	99	101
1972 1st quarter	101	102	98	98	98	100
2nd quarter	100	104	97	97	101	95
3rd quarter	100	103	96	95	102	94
4th quarter	99	105	94	95	105	90
1973 1st quarter	101	111	90	96	110	87
2nd quarter	102	110	93	97	110	88
3rd quarter	103	111	92	98	111	87
4th quarter					110	

(1) Based on expenditure data.

Index of industrial production



The index of industrial production covers about half of the gross domestic product.

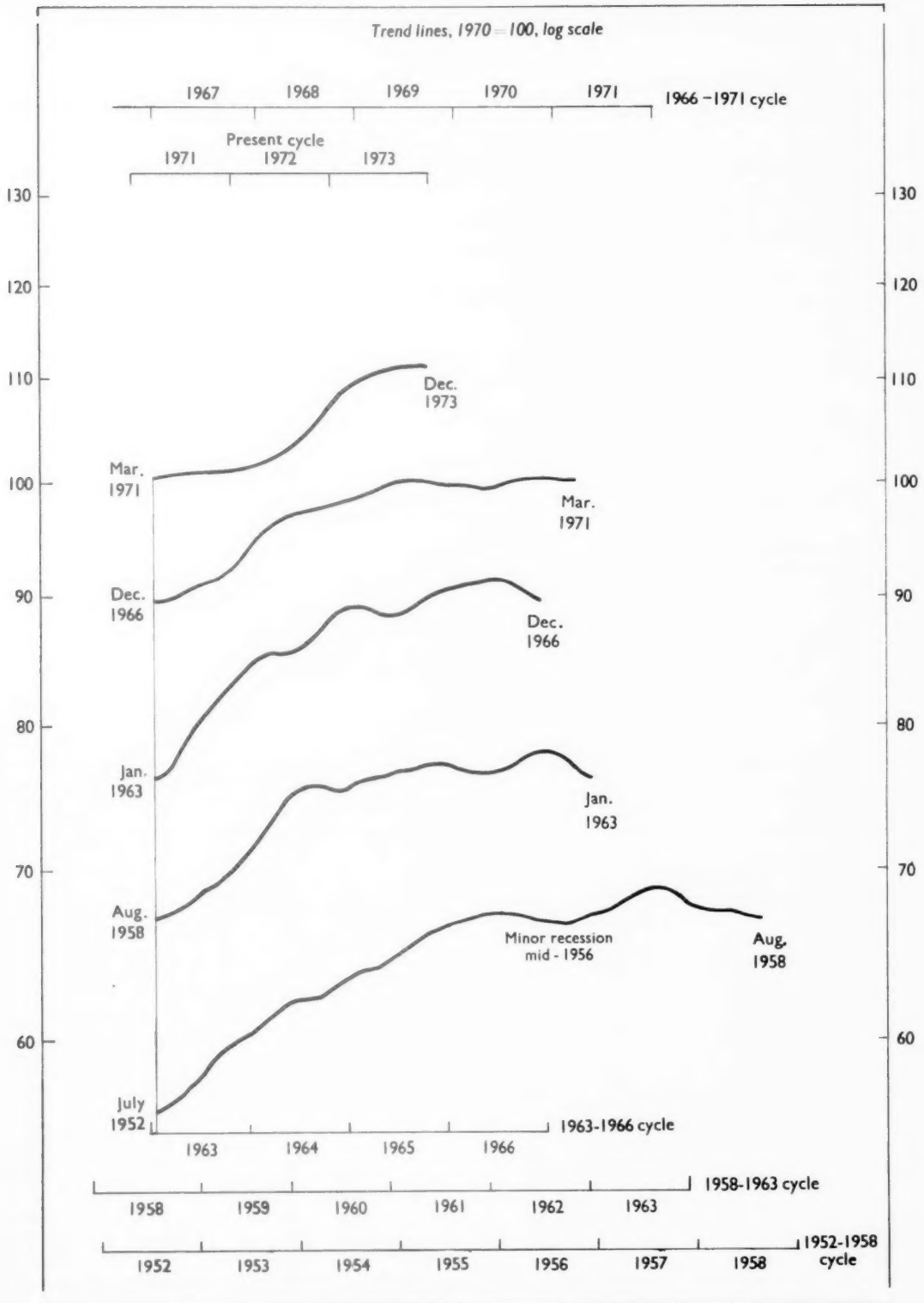
1970 = 100, seasonally adjusted

		All industries §	Manufacturing industries §		
			Engineering and allied industries	Chemicals and allied industries	Textiles, leather and clothing industries
	Weights	*1,000*	*318*	*58*	*76*
1971	October	100·6	99	102	103
	November	100·2	97	105	102
	December	100·3	98	106	101
1972	January	99·9	99	105	103
	February	93·1	92	99	95
	March	101·0	99	108	103
	April	101·7	98	104	104
	May	103·1	99	112	103
	June	103·5	98	108	105
	July	101·8	97	105	106
	August	101·4	97	106	105
	September	103·9	100	110	106
	October	104·9	100	112	108
	November	105·4	101	113	108
	December	105·8	102	111	109
1973	January	108·3	105	119	104
	February	110·4	108	118	113
	March	111·6	110	121	114
	April	109·7	107	117	113
	May	109·6	106	122	109
	June	110·7	109	121	115
	July	111·1	111	121	108
	August	110·5	111	121	108
	September	111·1	110	127	110
	October	111·3	110	130	110
	November	110·5	110	130	112
	December	106·3	105	124	106

(1) Quarterly data only before 1968.

Cycles of industrial production

This chart shows cycles in the index of production (all industries).



Changes in stocks, manufacturing production and imports of industrial materials

Imports of industrial materials rise or fall with rising or falling manufacturing production and stockbuilding.

Seasonally adjusted

	Volume of imports of industrial materials (1)	Manufacturing industry	
		Production	Stock changes
	1970 = 100		£ million, 1970 prices
1969 1st quarter	95	99	140
2nd quarter	96	100	83
3rd quarter	97	100	24
4th quarter	95	100	73
1970 1st quarter	96	100	22
2nd quarter	103	99	76
3rd quarter	95	100	26
4th quarter	106	101	51
1971 1st quarter	98	100	10
2nd quarter	100	100	—113
3rd quarter	100	99	— 68
4th quarter	104	99	— 47
1972 1st quarter	106	98	—156
2nd quarter	109	101	—145
3rd quarter	(2)	102	—125
4th quarter	122	105	— 72
1973 1st quarter	127	110	168
2nd quarter	126	110	87
3rd quarter	127	111	91
4th quarter		110	

(1) Basic materials and semi-finished manufactures. (2) Not available, affected by the dock strike.

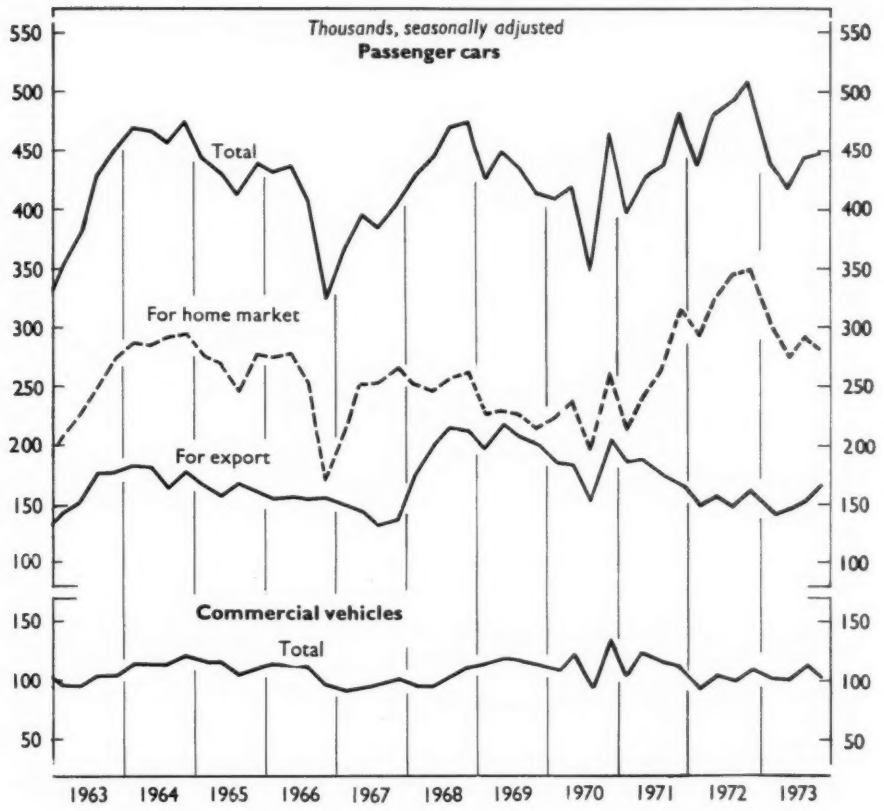
Steel

Thousand tonnes, seasonally adjusted

	Crude steel production §	Finished steel consumption(1)	Changes in consumers' and merchants' stocks(1)
1969 1st quarter	6,917	4,434	+271
2nd quarter	6,912	4,525	+206
3rd quarter	6,375	4,419	— 16
4th quarter	6,669	4,404	+ 67
1970 1st quarter	6,911	4,514	+142
2nd quarter	6,949	4,364	+123
3rd quarter	6,918	4,463	+193
4th quarter	7,091	4,296	+166
1971 1st quarter	6,325	4,520	—118
2nd quarter	5,976	4,158	—214
3rd quarter	6,412	4,067	—180
4th quarter	5,560	3,977	—327
1972 1st quarter	5,228	3,933	— 27
2nd quarter	6,520	4,043	—145
3rd quarter	6,731	4,275	+ 36
4th quarter	6,875	4,499	+116
1973 1st quarter	6,674	4,668	+135
2nd quarter	6,418	4,369	+205
3rd quarter(2)	6,963	4,640	+210
4th quarter(2)	6,649	4,837	+190

(1) From 1st quarter 1971 includes welded tubes, over 400mm internal diameter, previously excluded.
(2) Provisional.

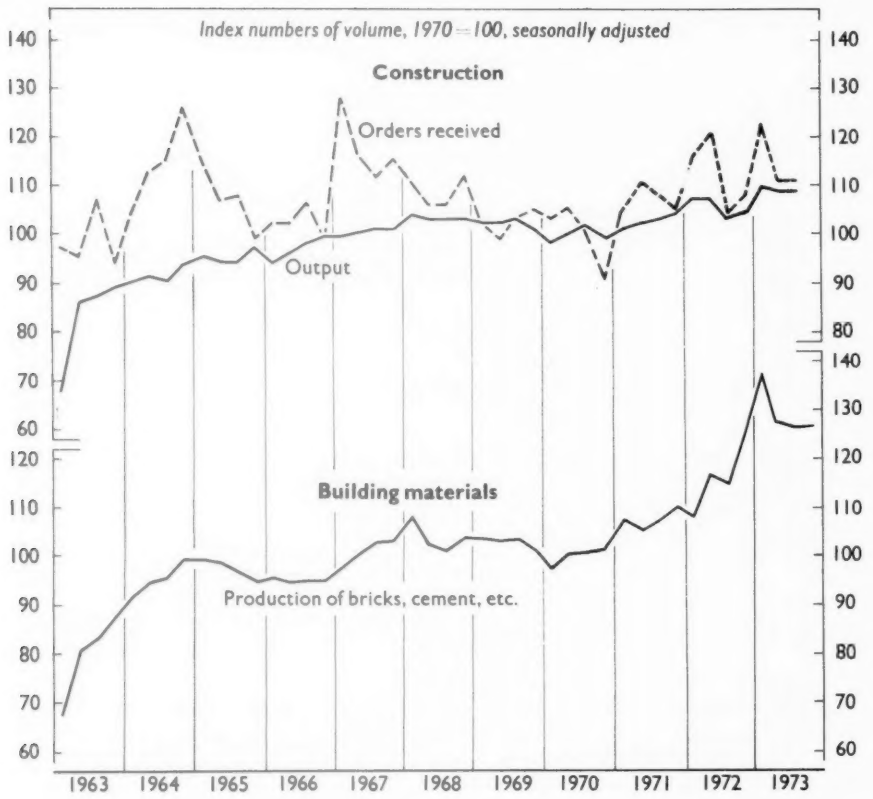
Motor vehicle production



Thousands, seasonally adjusted

	Passenger cars			Commercial vehicles §
	Total	For home market §	For export §	Total
1969 1st quarter	423·6	226·2	197·4	114·4
2nd quarter	447·9	225·2	218·7	119·4
3rd quarter	433·8	225·6	208·2	119·0
4th quarter	411·7	211·7	200·0	112·9
1970 1st quarter	407·8	223·2	184·6	109·1
2nd quarter	418·8	236·3	182·5	121·0
3rd quarter	346·9	196·2	150·7	93·6
4th quarter	467·4	262·4	205·0	133·8
1971 1st quarter	395·2	210·8	184·4	101·1
2nd quarter	428·9	240·7	188·2	123·6
3rd quarter	436·6	262·0	174·6	117·5
4th quarter	481·2	313·9	167·3	113·9
1972 1st quarter	439·5	290·3	149·2	92·0
2nd quarter	480·5	323·6	156·9	104·0
3rd quarter	491·8	345·0	146·8	100·7
4th quarter	509·5	349·0	160·5	111·4
1973 1st quarter	437·7	297·5	140·2	102·1
2nd quarter	417·3	272·3	145·0	101·4
3rd quarter	444·4	292·3	152·1	112·5
4th quarter	447·9	280·1	167·8	100·7

Construction industry

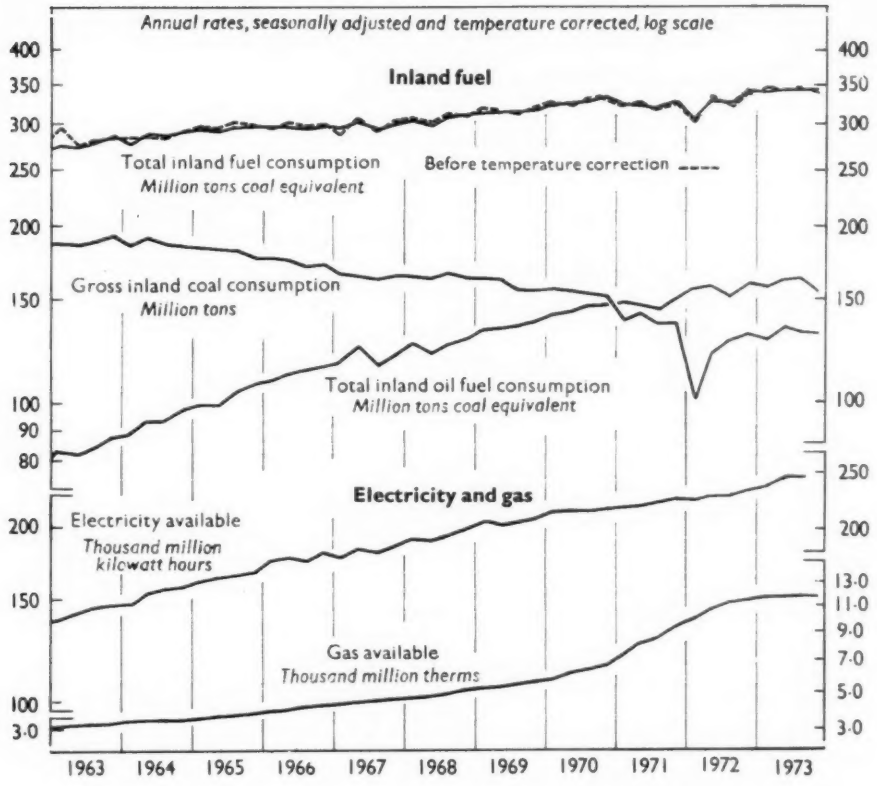


Index numbers of volume, 1970 = 100, seasonally adjusted

	Construction		Production of bricks, cement, etc.(1)
	Output(2) §	Orders received	
1969 1st quarter	102	102	104
2nd quarter	102	99	103
3rd quarter	103	103	103
4th quarter	101	105	101
1970 1st quarter	98	103	97
2nd quarter	100	105	100
3rd quarter	102	101	101
4th quarter	99	91	102
1971 1st quarter	101	105	108
2nd quarter	102	111	106
3rd quarter	103	108	107
4th quarter	104	105	110
1972 1st quarter	107	116	108
2nd quarter	107	121	116
3rd quarter	103	104	115
4th quarter	104	108	124
1973 1st quarter	110	123	137
2nd quarter	109	111	127
3rd quarter	109	111	126
4th quarter			127

(1) Index of industrial production series.
(2) Construction output figures include repair and maintenance, direct labour of public sector and estimates of unrecorded output by small firms and self-employed workers.

Inland fuel and power consumption

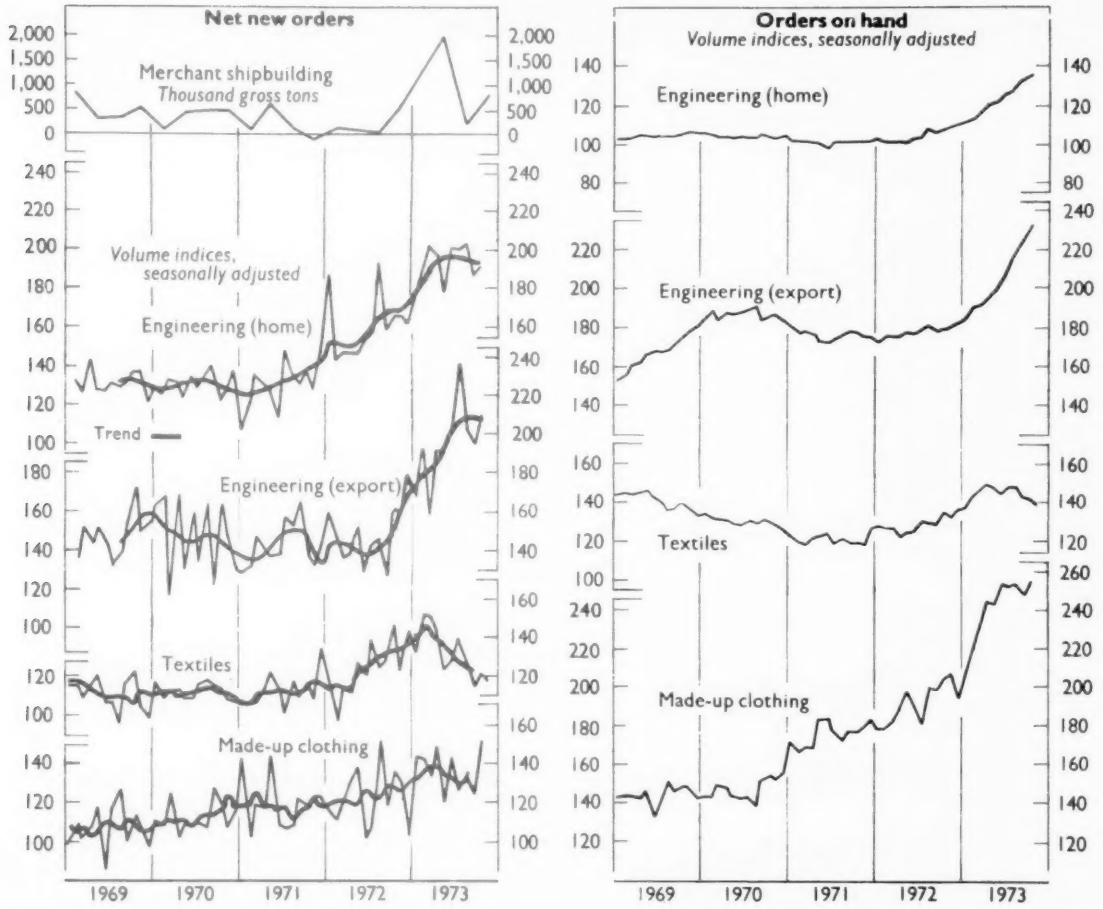


Annual rates, seasonally adjusted and temperature corrected

	Total inland fuel consumption (1)	Gross inland coal consumption	Total inland oil fuel consumption	Electricity available (2) (GB)	Gas available (3) (GB)
	Million tons coal equivalent	Million tons	Million tons coal equivalent	Th. million kilowatt hours	Thousand million therms
1969 1st quarter ..	312·1	162·6	132·7	207·1	5·19
2nd quarter ..	315·5	161·9	133·4	202·2	5·28
3rd quarter ..	315·3	157·3	134·1	203·1	5·46
4th quarter ..	318·5	156·6	138·2	208·6	5·66
1970 1st quarter ..	322·9	157·1	141·1	212·7	5·88
2nd quarter ..	325·6	154·9	143·5	213·4	6·17
3rd quarter ..	329·6	153·2	148·8	213·3	6·43
4th quarter ..	333·1	151·5	149·2	215·2	6·73
1971 1st quarter ..	324·3	140·3	149·3	217·0	7·33
2nd quarter ..	323·9	140·7	147·8	218·3	8·01
3rd quarter ..	319·9	137·6	144·3	220·1	8·52
4th quarter ..	329·5	137·6	150·9	223·3	9·15
1972 1st quarter ..	308·6	101·9	157·9	222·4	9·98
2nd quarter ..	330·7	122·2	159·0	227·8	10·70
3rd quarter ..	328·8	128·9	152·6	228·3	11·18
4th quarter ..	341·6	130·6	160·5	233·8	11·42
1973 1st quarter ..	340·6	129·6	158·8	237·8	11·51
2nd quarter ..	344·1	134·2	162·1	244·8	11·57
3rd quarter ..	343·2	132·0	162·7	243·5	11·62
4th quarter ..	343·9	131·1	154·9	..	11·66

(1) Includes consumption of nuclear energy. (2) The inclusion of Northern Ireland would add about 2% to the total. (3) The inclusion of Northern Ireland would add about 0·5% to the total.

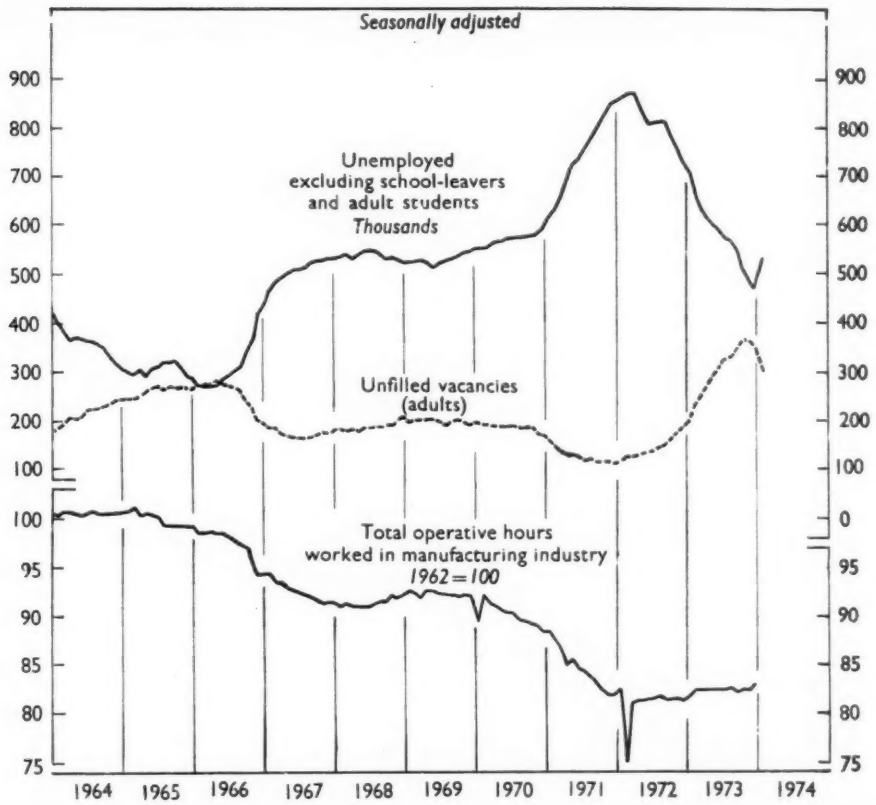
Orders: selected manufacturing industries



	Engineering industries (1)				Textiles industry		Made-up clothing industry		Merchant shipbuilding
	Home market		Export						
	Orders on hand end of period	Net new orders	Orders on hand end of period	Net new orders	Orders on hand end of period	Net new orders	Orders on hand end of period	Net new orders	Net new orders
	Dec.1963=100	1963 average monthly sales=100	Dec.1963=100	1963 average monthly sales=100	Dec.1962=100	Average 1963 deliveries=100	Dec.1962=100	Average 1963 deliveries=100	Thousand gross tons
	Seasonally adjusted								
1971 1st qtr. ..	101	122	178	134	118	106	169	121	98
2nd qtr...	98	125	173	137	124	116	183	123	622
3rd qtr...	101	140	178	156	120	110	176	112	141
4th qtr...	102	139	175	137	126	120	184	121	—101
1972 1st qtr. ..	101	160	176	147	125	110	181	116	143
2nd qtr...	103	149	177	140	124	120	190	123	72
3rd qtr...	107	170	178	139	128	131	199	126	22
4th qtr...	110	165	184	168	135	138	194	123	585
1973 1st qtr. ..	117	190	191	173	145	146	232	140	1,293
2nd qtr...	125	192	205	194	145	132	254	138	1,992
3rd qtr...	134	197	227	211	143	127	247	127	243
4th qtr. ..									829
July ..	128	200	215	235	148	139	251	125	
August ..	131	203	220	202	148	128	253	132	
September	134	187	227	195	143	115	247	124	
October..	135	191	233	209	141	121	255	152	
November					139	117			

(1) Mechanical, instrument and electrical engineering (SIC Orders VII, VIII and IX). Revised series from 1969, see *Trade and Industry* for 1 February 1973.

Unemployment and unfilled vacancies, hours worked
Great Britain

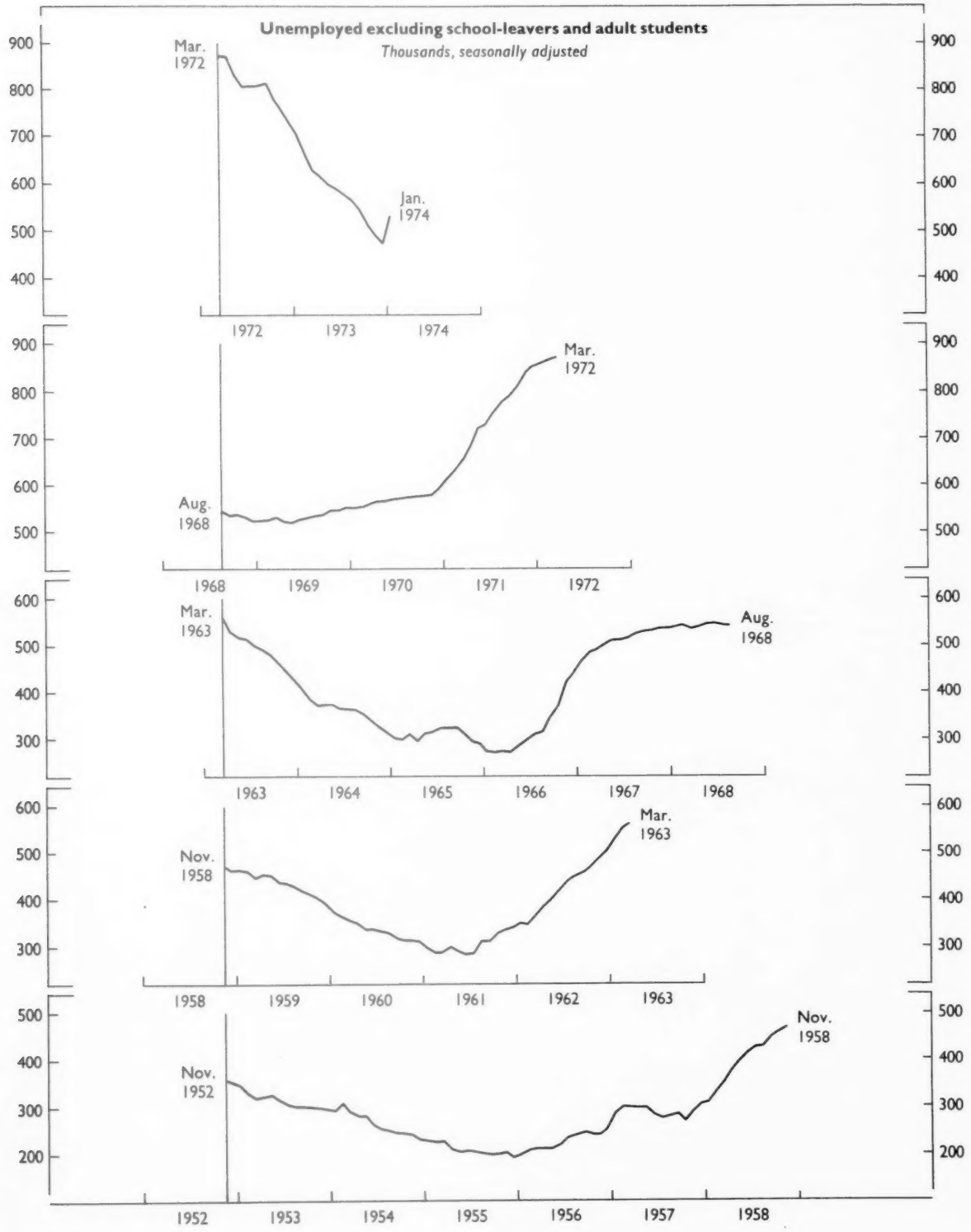


	Unemployed excluding school-leavers and adult students			Unfilled vacancies § (adults)		Total operative hours worked in manufacturing industry
	Total §		Production industries			
	Actual	Seasonally adjusted	Actual	Actual	Seasonally adjusted	1962=100 Seasonally adjusted
	Thousands					
1972 January	917	859	504	103	119	82·5
February	917	866	502	112	125	75·1
March	918	871	503	119	128	81·3
April	895	869	487	130	132	81·5
May	822	833	451	140	135	81·5
June	757	805	415	156	139	81·6
July	756	807	405	153	141	81·6
August	772	808	407	154	147	82·0
September	781	812	411	158	150	81·7
October	766	779	390	166	163	81·8
November	757	756	374	174	177	81·8
December	733	727	361	180	188	81·5
1973 January	760	703	376	185	201	81·9
February	711	660	348	219	232	82·6
March	678	630	331	244	254	82·6
April	644	617	313	273	275	82·6
May	588	599	289	301	296	82·6
June	541	590	268	323	307	82·6
July	528	578	257	337	325	82·6
August	530	565	256	335	328	82·7
September	514	545	246	353	346	82·3
October	502	515	235	365	362	82·6
November	491	490	228	363	366	82·5
December	483	476	229	348	356	83·0
1974 January	593	536	292	285	301	
February						
March						

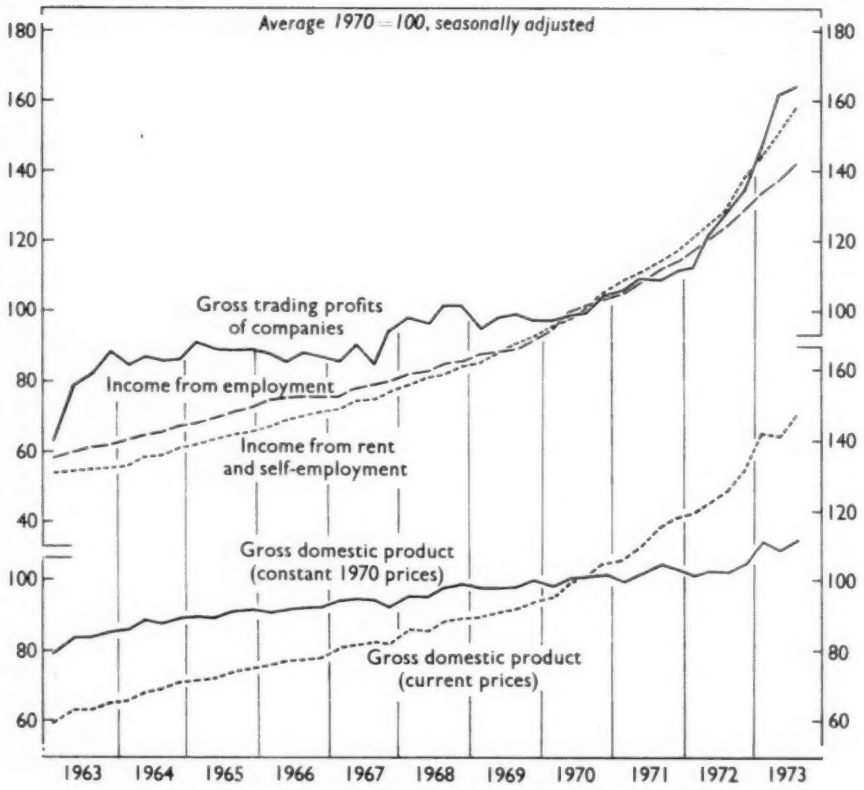
Present and previous cycles of unemployment

Great Britain

The unemployment cycle has usually lagged some months behind the production cycle (see page 19).



Incomes and output



Incomes have generally risen faster than output; as a consequence gross domestic product has grown faster in money value than in real terms.

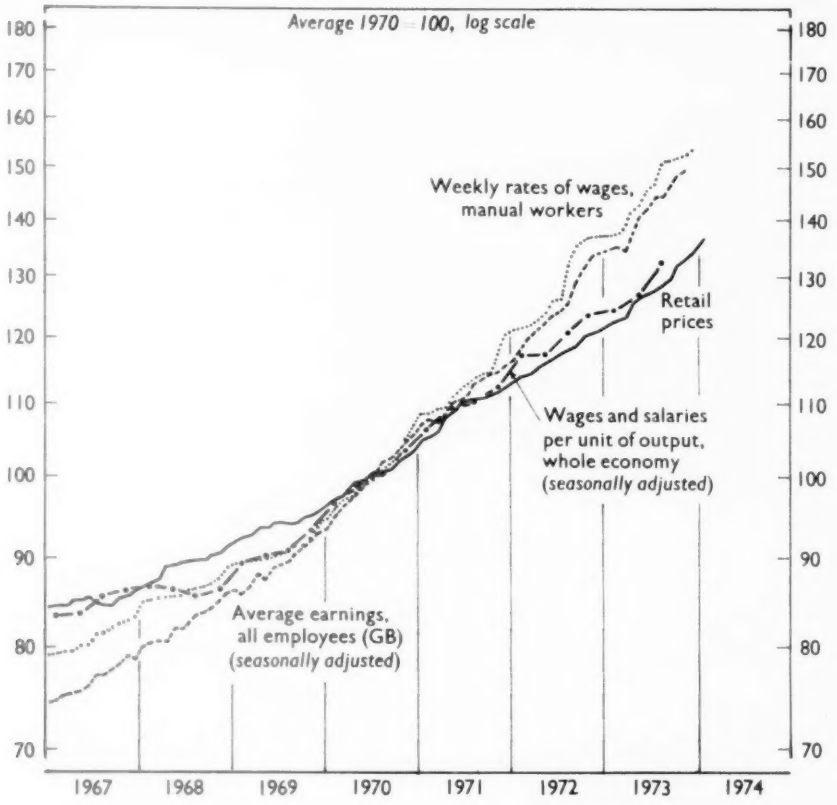
Average 1970 = 100, seasonally adjusted

	Income from employment §	Gross trading profits of companies §	Income from rent and self-employment §	Gross domestic product(1)	
				At current prices	At constant (1970) prices §
Value in 1972 (£ million)	*37,138*	*6,584*	*8,946*	*53,464*	*44,212*
1969 1st quarter	87·6	94·7	85·7	89·5	98·2
2nd quarter	88·4	98·1	88·3	90·5	97·9
3rd quarter	89·7	99·4	90·5	92·1	98·4
4th quarter	92·7	97·4	92·9	94·1	99·7
1970 1st quarter	94·5	97·2	94·8	95·2	98·3
2nd quarter	99·4	99·0	98·2	99·1	100·1
3rd quarter	102·2	99·5	101·9	100·9	100·4
4th quarter	104·0	104·3	105·1	104·8	101·2
1971 1st quarter	106·1	106·5	107·6	105·7	99·9
2nd quarter	109·1	109·5	110·6	110·0	101·3
3rd quarter	112·3	108·7	114·0	116·3	103·9
4th quarter	114·3	111·4	116·9	118·1	103·1
1972 1st quarter	116·9	113·6	121·0	119·8	102·0
2nd quarter	121·1	122·3	125·2	122·6	103·3
3rd quarter	124·5	128·2	128·5	125·9	103·0
4th quarter	129·8	134·8	138·2	131·6	105·0
1973 1st quarter	134·0	148·7	145·6	142·1	110·9
2nd quarter	138·0	162·4	151·6	141·5	109·1
3rd quarter	142·9	164·0	158·5	147·3	111·1
4th quarter					

(1) Gross domestic product at factor cost, based on expenditure data.

Wage rates, earnings, wages and salaries per unit of output and retail prices

Wage and salary earnings tend to rise together and faster than retail prices. In most periods, earnings rise faster than basic rates of pay but, with increasing productivity, wages and salaries per unit of output rise more slowly.

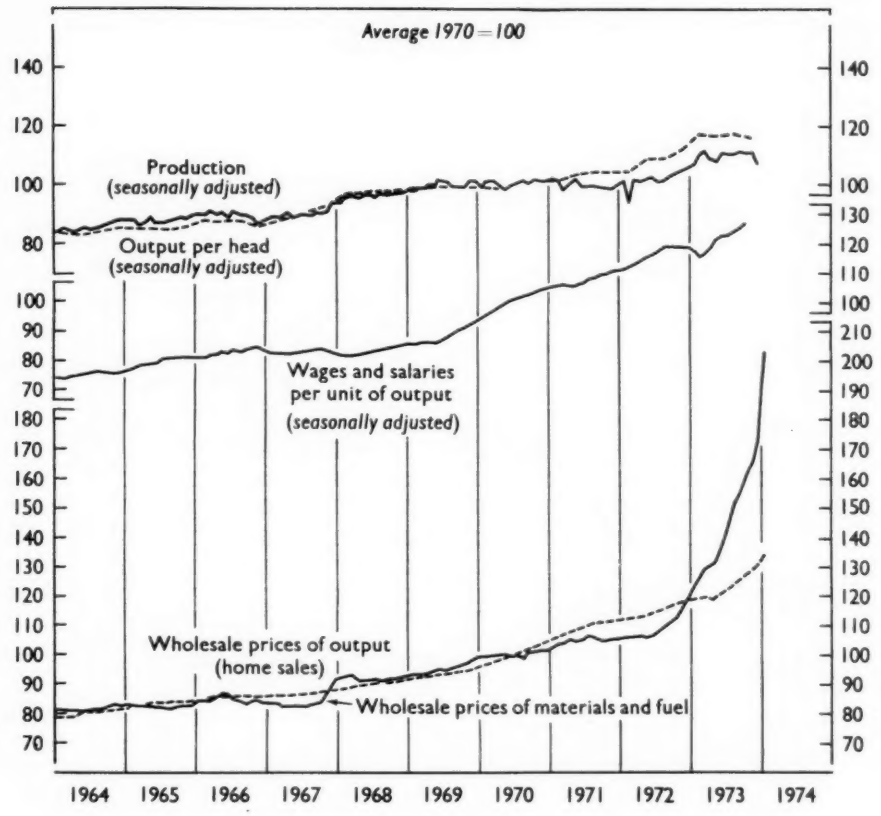


Average 1970 = 100

	Weekly rates of wages, manual workers	Average earnings, all employees (GB) §	Wages and salaries per unit of output, whole economy	General index of retail prices
		Seasonally adjusted		
1969 1st quarter	89·6	86·4	89·4	92·5
2nd quarter	90·0	88·2	90·2	94·0
3rd quarter	91·0	89·8	90·9	94·2
4th quarter	92·8	92·3	93·3	95·4
1970 1st quarter	96·0	95·2	96·8	97·1
2nd quarter	98·3	98·4	98·9	99·5
3rd quarter	100·8	101·5	100·6	100·6
4th quarter	104·8	104·9	103·5	102·7
1971 1st quarter	108·8	107·4	106·8	105·5
2nd quarter	111·1	109·8	109·1	109·3
3rd quarter	113·9	112·9	110·8	110·8
4th quarter	117·7	114·9	112·7	112·2
1972 1st quarter	121·7	118·3(1)	117·2	113·9
2nd quarter	124·4	122·4	117·2	116·1
3rd quarter	131·1	126·6	121·1	117·9
4th quarter	136·8	133·1	123·6	120·8
1973 1st quarter	137·8	134·7	124·9	123·0
2nd quarter	143·8	139·9	127·2	126·9
3rd quarter	149·8	145·1	132·5	128·8
4th quarter	152·7			133·2

(1) As industrial activity was severely disrupted by restricted electricity supplies, no enquiry was held in February. The index is therefore given as an average of the January and March figures.

Manufacturing industry: output, costs and prices



There are cyclical variations in the growth of output per head and in wages and salaries per unit of output. Wholesale prices of output are not generally sensitive to these short-term fluctuations but follow rather their long-term trend.

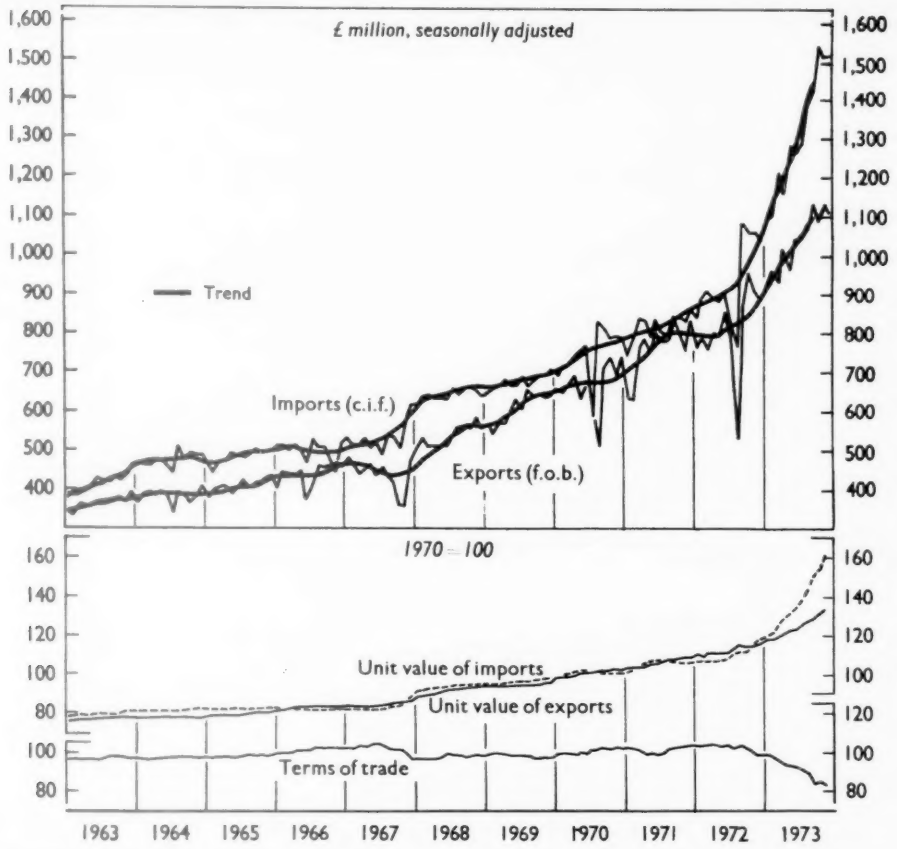
Average 1970 = 100

	Production	Output per head	Wages and salaries per unit of output	Wholesale prices	
	Seasonally adjusted			Materials and fuel(1)	Output Home sales(2)
1969 1st quarter ..	98·5	98·5	85·8	93·1	92·2
2nd quarter ..	100·2	99·8	86·4	94·3	92·9
3rd quarter ..	99·6	99·2	88·7	95·2	93·7
4th quarter ..	99·9	99·3	91·9	97·5	94·7
1970 1st quarter ..	99·8	99·3	95·3	99·2	96·7
2nd quarter ..	99·2	98·9	99·3	99·7	98·9
3rd quarter ..	100·1	100·2	101·7	99·8	100·9
4th quarter ..	100·9	101·5	103·7	101·4	103·4
1971 1st quarter ..	100·0	101·1	105·5	103·0	106·3
2nd quarter ..	100·3	103·2	106·1	104·9	108·7
3rd quarter ..	99·4	104·5	108·4	105·6	110·3
4th quarter ..	99·0	104·4	110·0	104·8	110·8
1972 1st quarter ..	98·4	104·8	111·9(3)	105·6	112·1
2nd quarter ..	101·3	108·3	115·3	106·1	113·5
3rd quarter ..	101·6	108·7	118·8	109·4	115·6
4th quarter ..	104·8	112·2	119·4	115·6	118·0
1973 1st quarter ..	110·1	117·5	116·7	126·0	119·5
2nd quarter ..	109·9	116·9	121·0	133·4	120·1
3rd quarter ..	111·3	118·0	124·0	150·5	124·2
4th quarter ..	110·0	116·4		166·9	129·1

(1) Revised method of calculation to include levies on certain imported foods from 3rd quarter 1971. (2) Reductions in the VAT-exclusive prices of alcoholic liquor, tobacco and cigarettes, matches and mechanical lighters took place in April. These reductions resulted from lower revenue duties designed to offset additional tax revenue from VAT. With unchanged prices in April for these products, index numbers for quarters from 2nd quarter 1973 onwards would have been higher by 1·7. (3) Average of the January and March figures. See footnote (1) on page 29.

Exports and imports: terms of trade

The index numbers of unit value give measures of price changes in United Kingdom exports and imports. A rise in the terms of trade (unit value index for exports divided by unit value index for imports) is favourable to the visible balance of payments.

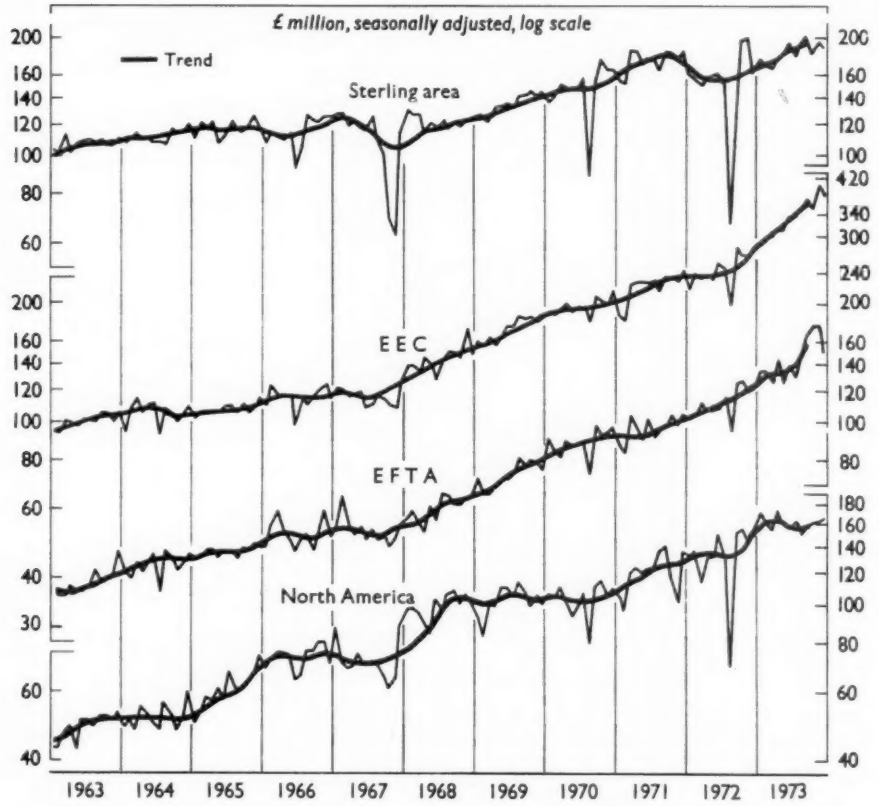


		Exports (f.o.b.) §	Imports (c.i.f.) §	Unit value of exports	Unit value of imports	Terms of trade
		£ million, seasonally adjusted		1970=100		
1971	October	811	845	108·5	105·3	103·0
	November	760	828	109·3	105·8	103·3
	December	833	860	109·4	105·6	103·6
1972	January	768	836	110·5	107·2	103·1
	February	794	886	109·8	106·1	103·5
	March	763	914	110·6	106·5	103·8
	April	800	890	110·7	107·0	103·5
	May	798	881	110·6	107·6	102·8
	June	856	904	111·1	107.6	103·3
	July	801	813	112·1	110·2	101·7
	August (¹)	532	771	115·5	111·5	103·6
	September (¹)	871	1,087	114·6	110·8	103·4
	October	954	1,066	114·1	113·1	100·9
	November	914	1,067	115·0	116·3	98·9
	December	893	1,039	116·2	118·2	98·3
1973	January	938	1,092	118·0	119·1	99·1
	February	959	1,100	118·3	121·9	97·0
	March	939	1,211	119·7	125·7	95·2
	April	1,018	1,156	121·9	129·5	94·1
	May	972	1,280	123·0	132·3	93·0
	June	1,041	1,271	123·9	134·7	92·0
	July	1,044	1,290	125·6	138·9	90·4
	August	1,074	1,392	127·8	144·8	88·3
	September	1,136	1,428	128·5	152·1	84·5
	October	1,094	1,540	132·0	154·9	85·2
	November	1,134	1,516	133·8	161·3	83·0
	December	1,110	1,518			

Note : The figures on this page are calculated on an *Overseas Trade Statistics* basis. No adjustment has been made for factors affecting the recording of exports. The imports figures exclude US military aircraft.

(¹) Affected by the dock strike.

Exports: analysis by destination

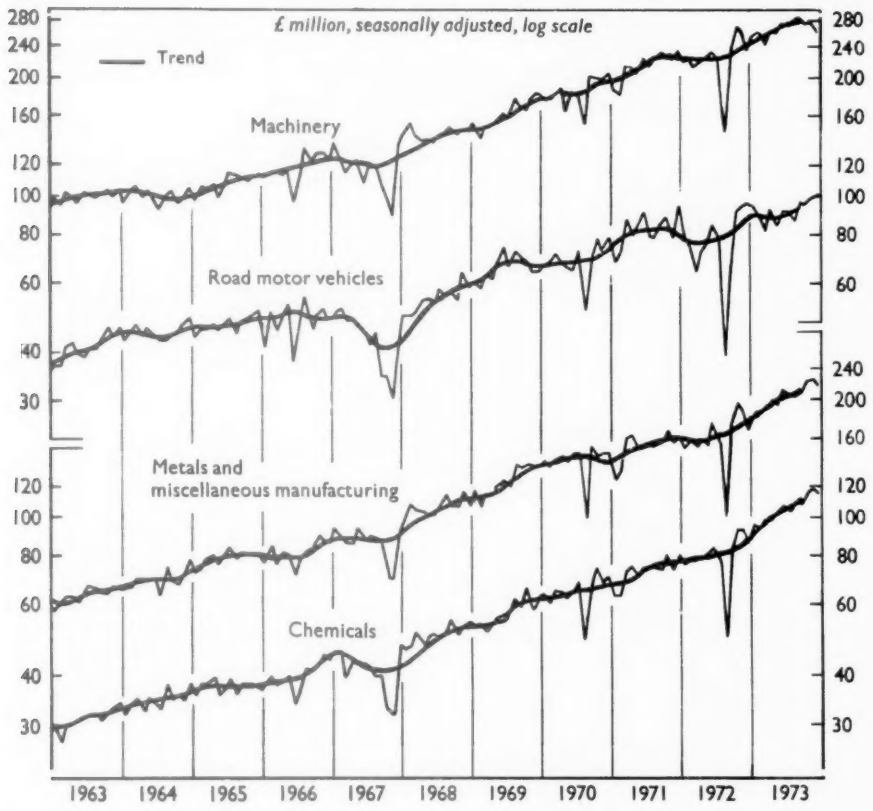


£ million, seasonally adjusted

		Total	Sterling area outside Europe(1)	EEC(2)	EFTA(2)	North America
1971	October	811	183	235	104	117
	November	760	178	230	99	102
	December	833	184	242	104	136
1972	January	768	161	219	102	132
	February	794	156	239	103	136
	March	763	150	232	111	114
	April	800	158	235	108	131
	May	798	159	231	108	132
	June	856	161	251	109	150
	July	801	152	246	116	129
	August	532	67	199	95	70
	September	871	144	278	127	152
	October	954	198	268	128	155
	November	914	199	267	120	144
	December	893	162	273	122	153
1973	January	938	174	284	135	170
	February	959	170	297	135	160
	March	939	168	296	127	154
	April	1,018	176	312	144	172
	May	972	182	310	125	160
	June	1,041	194	336	138	156
	July	1,044	180	339	130	162
	August	1,074	194	355	149	152
	September	1,136	201	371	167	160
	October	1,094	183	351	175	161
	November	1,134	195	400	175	163
	December	1,110	188	377	150	165

(1) Excluding Irish Republic which is included in EEC. (2) 1973 basis.

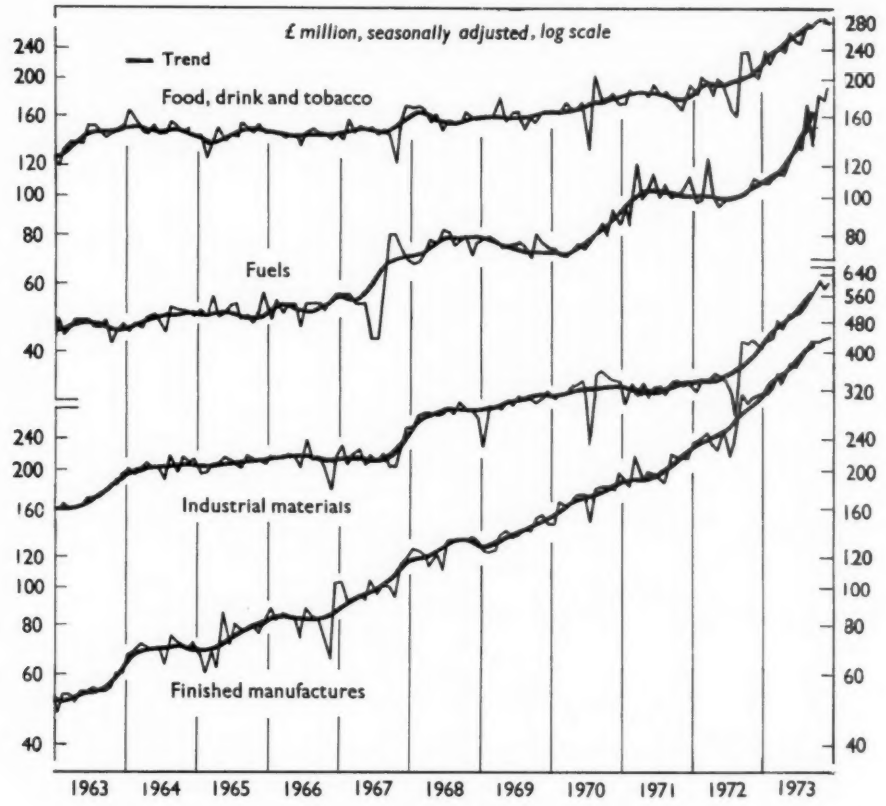
Exports: analysis by commodity classes



£ million, seasonally adjusted

		Total	Machinery	Road motor vehicles	Metals and miscellaneous manufacturing	Chemicals
1971	October	811	229	89	169	80
	November	760	222	78	157	74
	December	833	234	94	163	80
1972	January	768	220	78	152	76
	February	794	225	75	159	79
	March	763	213	65	153	77
	April	800	224	73	160	80
	May	798	223	78	156	82
	June	856	232	84	175	84
	July	801	227	78	157	79
	August	532	148	38	101	50
	September	871	241	67	175	83
	October	954	269	92	198	93
	November	914	261	94	185	93
	December	893	234	96	169	87
1973	January	938	259	94	187	96
	February	959	262	89	189	94
	March	939	245	82	190	99
	April	1,018	266	93	199	98
	May	972	262	85	194	103
	June	1,041	277	92	211	107
	July	1,044	276	92	208	104
	August	1,074	280	87	201	110
	September	1,136	285	97	208	109
	October	1,094	277	95	222	117
	November	1,134	278	99	226	119
	December	1,110	261	101	218	116

Imports: analysis by commodity classes

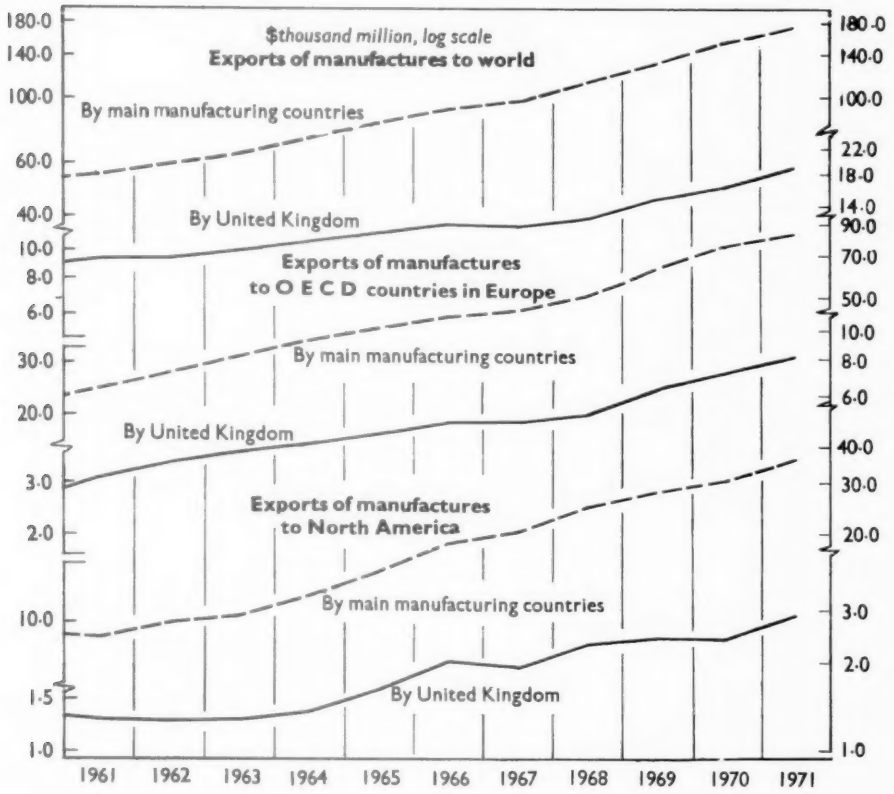


£ million, seasonally adjusted

		Total (1)	Food, drink and tobacco	Fuels	Industrial materials (2)	Finished manufactures (1)
1971	October	845	173	102	340	217
	November	828	167	102	329	216
	December	860	191	113	330	216
1972	January	836	184	97	315	234
	February	886	202	99	344	240
	March	914	195	126	341	248
	April	890	181	104	348	232
	May	881	198	95	345	225
	June	904	195	99	339	253
	July	813	165	97	315	222
	August	771	161	101	267	239
	September	1,087	234	103	428	311
	October	1,066	235	104	417	298
	November	1,067	208	111	429	309
	December	1,039	202	110	409	317
1973	January	1,092	237	109	427	317
	February	1,100	220	111	434	324
	March	1,211	246	115	488	359
	April	1,156	238	114	460	332
	May	1,280	261	126	504	374
	June	1,271	251	136	502	368
	July	1,290	248	132	509	381
	August	1,392	279	173	535	404
	September	1,428	273	135	567	429
	October	1,540	282	181	624	428
	November	1,516	282	175	584	436
	December	1,518	278	190	611	438

(1) Excluding US military aircraft, etc. (2) See also page 20.

United Kingdom exports of manufactures in world markets

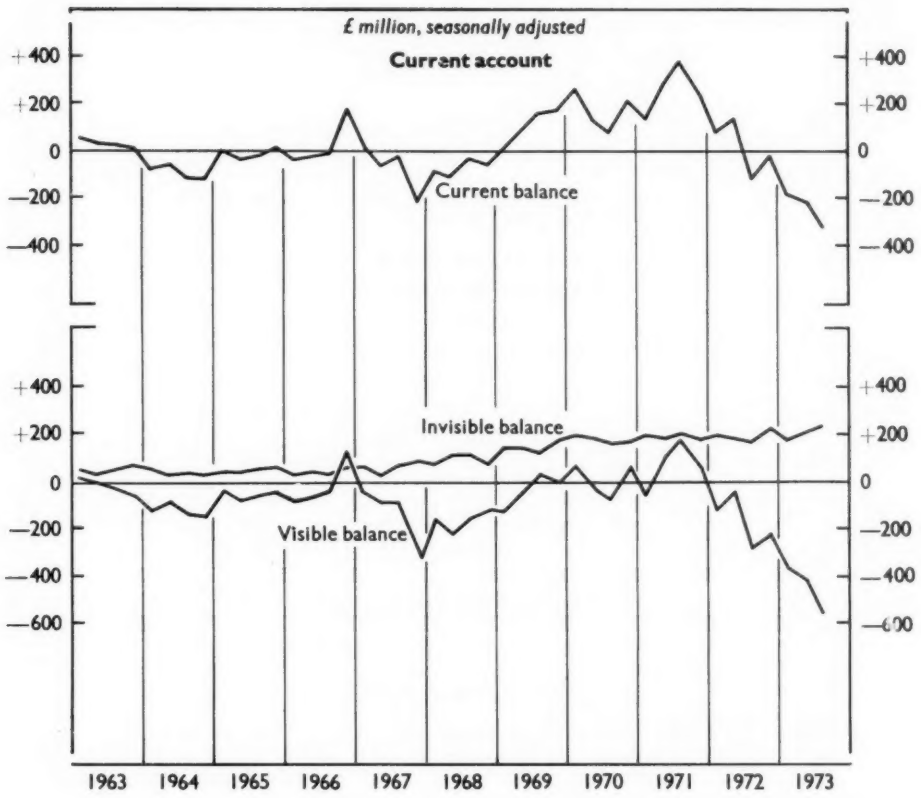


$ thousand million

	To world		To OECD countries in Europe (including Finland and Iceland)		To North America	
	By main manufacturing countries (1)	By United Kingdom	By main manufacturing countries (1)	By United Kingdom	By main manufacturing countries (1)	By United Kingdom
1961	55·47	9·12	24·66	3·14	8·98	1·27
1962	60·10	9·34	27·95	3·51	10·00	1·27
1963	65·15	9·99	31·28	3·86	10·52	1·28
1964	74·35	10·57	35·89	4·17	12·29	1·37
1965	83·01	11·47	39·61	4·43	15·00	1·63
1966	92·92	12·29	43·62	4·85	18·61	2·01
1967	99·45	12·10	45·78	4·89	20·54	1·94
1968	114·50	12·99	51·74	5·21	25·56	2·31
1969	134·08	15·01	63·13	6·36	28·87	2·44
1970	154·32	16·34	75·33	7·26	30·67	2·41
1971	174·02	19·03	83·65	8·29	36·76	2·90

(1) United Kingdom, United States of America, German Federal Republic, France, Italy, Belgium/Luxembourg, Netherlands, Sweden, Switzerland, Canada and Japan.

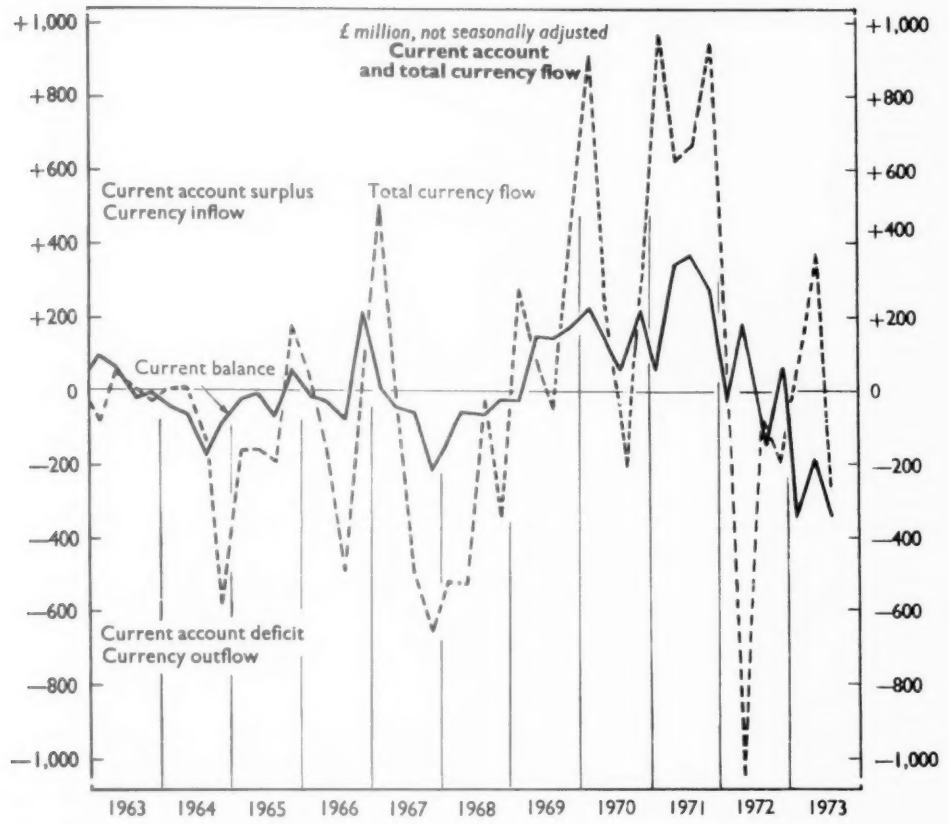
Balance of payments



£ million, seasonally adjusted

	Current account		
	Visible balance	Invisible balance	Current balance
1969 1st quarter	—129	+146	+ 17
2nd quarter	— 48	+143	+ 95
3rd quarter	+ 34	+129	+163
4th quarter	—	+170	+170
1970 1st quarter	+ 59	+196	+255
2nd quarter	— 46	+182	+136
3rd quarter	— 77	+161	+ 84
4th quarter	+ 55	+162	+217
1971 1st quarter	— 52	+197	+145
2nd quarter	+105	+183	+288
3rd quarter	+172	+208	+380
4th quarter	+ 60	+188	+248
1972 1st quarter	—119	+198	+ 79
2nd quarter	— 50	+181	+131
3rd quarter	—284	+174	—110
4th quarter	—232	+215	— 17
1973 1st quarter	—364	+177	—187
2nd quarter	—411	+203	—208
3rd quarter	—550	+233	—317
4th quarter			

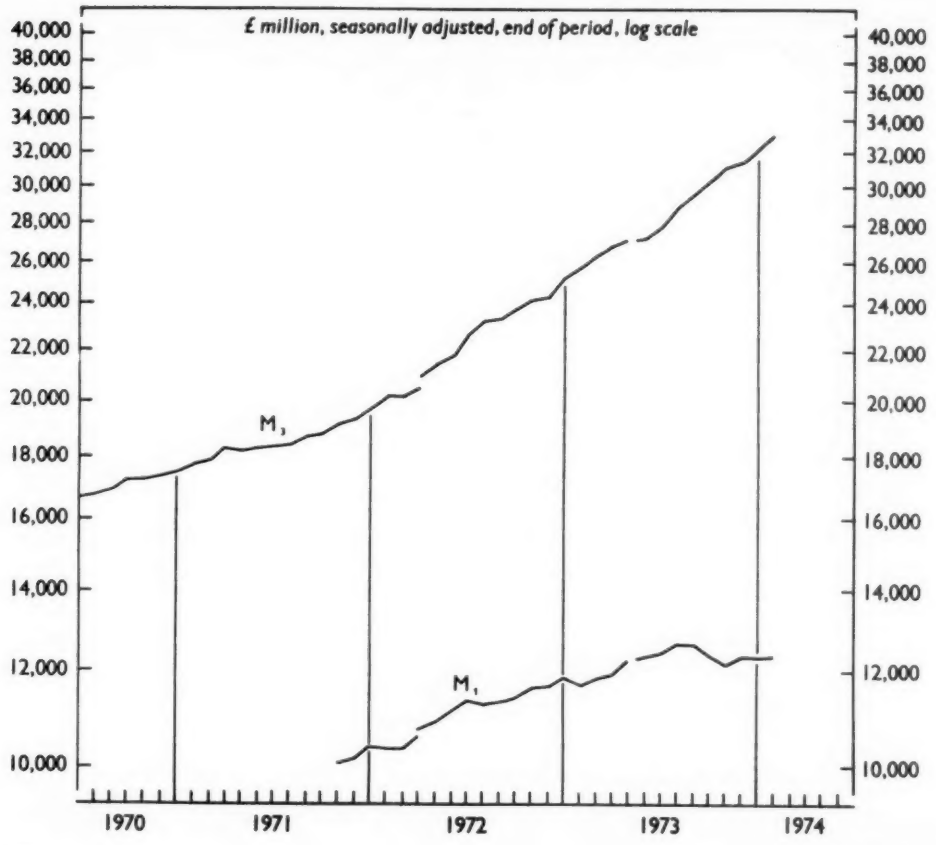
Balance of payments (*continued*)



£ million, not seasonally adjusted

	Current balance	Total currency flow
1969 1st quarter	— 28	+ 272
2nd quarter	+157	+ 82
3rd quarter	+148	— 47
4th quarter	+168	+ 436
1970 1st quarter	+233	+ 915
2nd quarter	+162	+ 227
3rd quarter	+ 69	— 202
4th quarter	+228	+ 347
1971 1st quarter	+ 64	+ 973
2nd quarter	+347	+ 634
3rd quarter	+370	+ 668
4th quarter	+280	+ 953
1972 1st quarter	— 23	+ 57
2nd quarter	+187	—1,045
3rd quarter	—149	— 79
4th quarter	+ 68	— 198
1973 1st quarter	—349	+ 69
2nd quarter	—183	+ 377
3rd quarter	—335	— 258
4th quarter		

Monthly stock of money



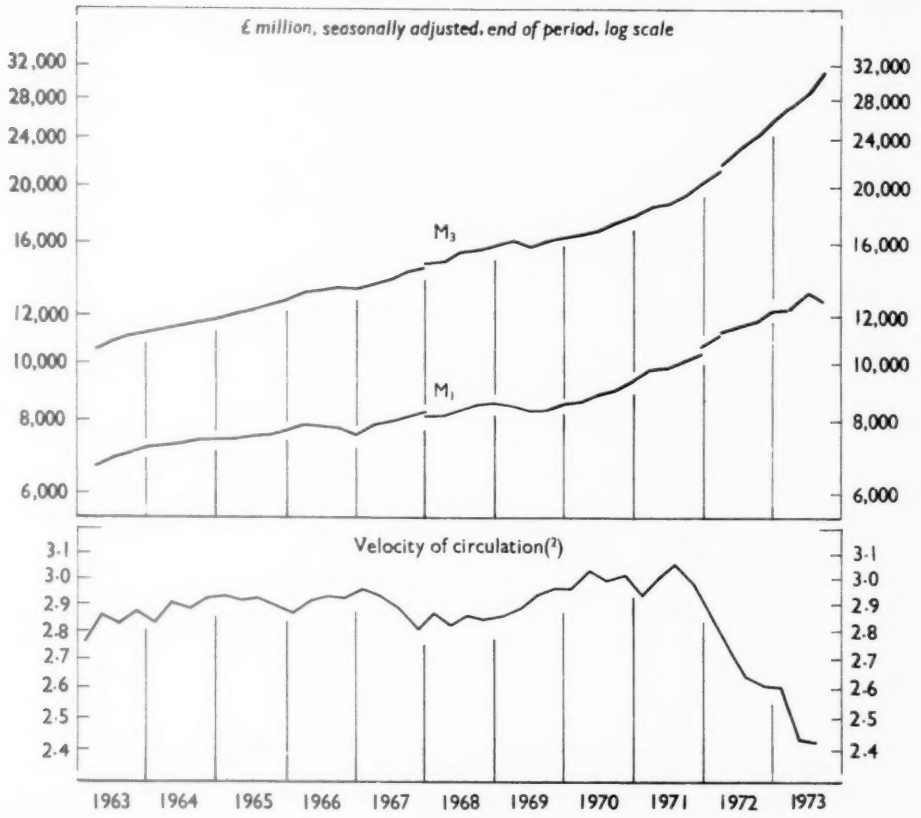
£ million, seasonally adjusted

	M_1 (1)(2)		M_3 (1)(2)	
	Outstanding	Changes during 'banking months' ending	Outstanding	Changes during 'banking months' ending
1972 April 19	10,940	208	21,480	547
May 17	11,090	152	21,820	334
June 21	11,370	276	22,660	839
July 19	11,300	— 68	23,130	476
August 16	11,350	47	23,300	164
September 20	11,420	70	23,770	474
October 18	11,580	160	24,070	299
November 15	11,630	48	24,380	324
December 13	11,840	210	25,070	699
1973 January 17	11,730	—101	25,630	559
February 21	11,820	81	26,410	777
March 21	11,940	122	26,820	409
April 18(3)	12,270	336	27,190	373
	12,270		27,130	
May 16	12,310	38	27,240	108
June 20	12,440	130	27,900	659
July 18	12,660	218	28,990	1,097
August 15	12,620	— 42	29,610	617
September 19	12,350	—267	30,330	720
October 17	12,150	—197	31,100	767
November 21	12,330	178	31,500	399
December 12	12,320	— 14	32,320	828
1974 January 16	12,340	25	33,020	697
February 20				
March 20				

(1) An article on money stock was published in the March 1972 issue of *Economic Trends*.
(2) The break in series indicates the inclusion of five finance houses recognised or confirmed as banks in January 1972. For further details see *Financial Statistics, Notes and Definitions*, April 1973.
(3) See supplement to *Notes and Definitions* in *Financial Statistics*.

The stock of money

The breaks in the money stock series at December 1967, March 1972 and March 1973 show the effects of changes in contributors which are described in *Financial Statistics*. The break in the series for M_1 at December 1971 reflects additional statistical information and is explained in notes to Table 12 in the *Bank of England Quarterly Bulletin*, March 1972.

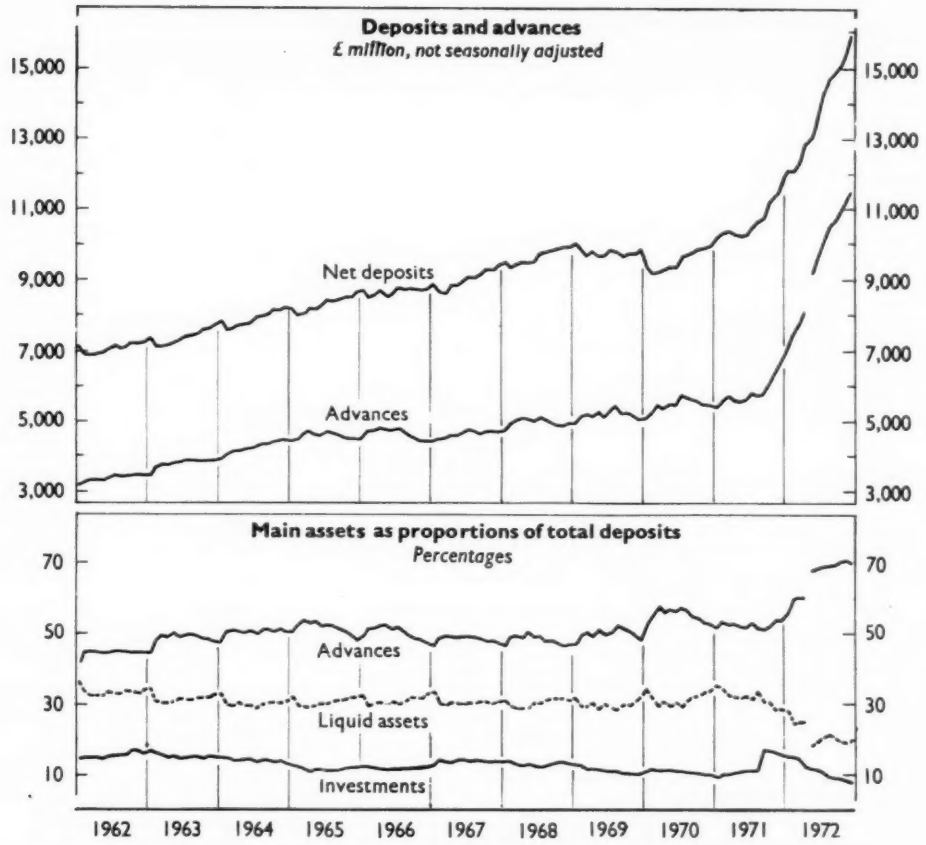


	Money stock (1)		Velocity of circulation (2)
	M_1	M_3 §	
	£ million, seasonally adjusted		
Amounts outstanding at end of period			
1969 March	8,490	16,070	2·850
June	8,330	15,870	2·888
September	8,320	16,030	2·944
December	8,580	16,300	2·966
1970 March	8,650	16,410	2·962
June	8,960	16,980	3·029
September	9,060	17,390	2·995
December	9,380	17,840	3·011
1971 March	9,800	18,420	2·946
June	9,910	18,730	3·003
September	10,230	19,200	3·067
December	10,820	20,240	2·992
1972 March	11,230	21,210	2·850
June	11,290	21,620	
September	11,740	23,150	2·749
December	11,900	24,170	2·637
1973 March	12,380	25,930	2·608
June	12,390	27,430	2·606
September	12,400	27,400	
December	13,190	28,690	2·435
	12,820	31,140	2·425

(1) The estimates include allowance for wastage, hoarding, etc. of coin in circulation which is not incorporated in the changes shown in the chart and table on page 38. See also footnote on page 38.

(2) Ratio of GNP at current market prices seasonally adjusted expressed at an annual rate to the centred quarterly average of M_3 seasonally adjusted.

London clearing banks



The banks' main assets are their advances to customers, their liquid assets (these are cash and balances with the Bank of England, other than special deposits, money at call and short notice and bills discounted) and their investments (mainly British government securities). Deposits are their main liabilities. In recent years the ratio of advances to deposits has risen and the ratio of liquid assets to deposits has fallen. From September 1971 both deposits and advances have risen more rapidly because the banks have begun to do business in new areas, previously left entirely to their subsidiaries; these include the issue and holding of sterling certificates of deposit, dealings in the sterling inter-bank market and an expansion of foreign currency business.

Note: Data is no longer collected on this basis from the London clearing banks. Consideration is, at present, being given as to which alternative series should be shown in *Economic Trends*.

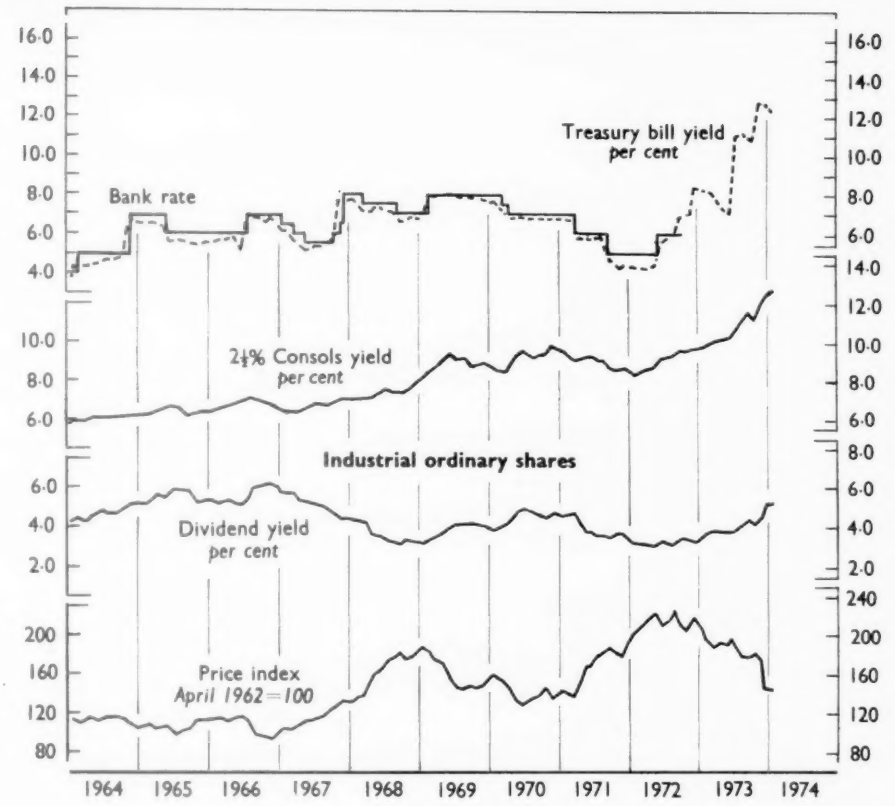
	Net deposits (1)	Advances to customers, etc. (2)	Main assets as proportions of gross deposits		
			Liquid assets	Investments	Advances (3)
	£ million, not seasonally adjusted		Percentages		
1970 October 21	9,861	5,591	32·6	10·2	54·8
November 18	9,924	5,515	33·3	10·1	53·3
December 9	9,997	5,495	33·8	10·0	52·8
1971 January 20	10,224	5,440	35·7	9·9	51·9
February 17	10,347	5,618	34·4	10·2	53·7
March 17	10,350	5,701	32·4	10·2	52·9
April 21	10,332	5,657	32·3	10·7	53·1
May 19	10,291	5,630	32·2	10·9	52·5
June 16	10,300	5,653	32·7	11·0	52·3
July 21	10,555	5,820	32·0	11·0	53·4
August 18	10,653	5,709	33·6	11·0	51·9
September 15	10,728	5,722	30·7	17·2	51·6
October 20	11,227	6,064	30·5	16·7	52·2
November 17	11,412	6,407	28·6	16·6	54·4
December 8	11,859	6,679	28·8	16·0	54·4
1972 January 19	12,118	7,038	28·1	15·8	56·3
February 16	12,087	7,524	24·5	15·5	60·4
March 15	12,343	7,800	25·0	14·2	60·8
April 19	12,816	8,116	25·0	13·2	60·7
May 17(4)	13,015	9,191	18·6	12·7	67·6
June 21	13,515	9,609	19·6	11·5	68·3
July 19	14,382	10,262	20·5	10·3	68·7
August 16	14,729	10,510	21·0	9·6	69·2
September 20	14,886	10,666	20·6	9·5	69·4
October 18	15,071	10,966	19·6	9·4	70·5
November 15	15,425	11,316	19·4	9·0	70·6
December 13	15,988	11,568	20·4	8·6	69·9

(1) Total deposits *less* balances with, and collections on, other banks, and items in transit, etc. (2) Excluding advances to nationalised industries and items in transit. (3) Total advances excluding items in transit. (4) The break in series at May 17 1972 reflects the transfer of £670 million refinanceable credits and short-term export finance from Other bills to Advances to customers, etc.

Interest rates, security prices and yields

Bank rate (1)

Date of change	New rate
1960 January 21	5
June 23	6
October 27	5½
December 8	5
1961 July 25	7
October 5	6½
November 2	6
1962 March 8	5½
March 22	5
April 26	4½
1963 January 3	4
1964 February 27	5
November 23	7
1965 June 3	6
1966 July 14	7
1967 January 26	6½
March 16	6
May 4	5½
October 19	6
November 9	6½
November 18	8
1968 March 21	7½
September 19	7
1969 February 27	8
1970 March 5	7½
April 15	7
1971 April 1	6
September 2	5
1972 June 22 to October 12	6



	Bank of England's minimum lending rate (1)	Treasury bill yield	2½% Consols yield	Industrial ordinary shares	
	Last Friday			Yield	Price index
	Percentage				April 1962 = 100
1972 January	..	4·40	8·39	3·37	201·38
February	..	4·41	8·40	3·31	206·98
March	..	4·36	8·57	3·23	213·55
April	..	4·31	8·68	3·16	219·48
May	..	4·35	8·92	3·14	223·46
June	..	5·72	9·34	3·36	211·55
July	..	5·85	9·35	3·31	215·09
August	..	5·91	9·46	3·19	224·66
September	..	6·74	9·58	3·41	210·64
October	7½	7·01	9·59	3·50	206·76
November	7½	7·06	9·58	3·43	213·26
December	9	8·48	9·71	3·33	219·31
1973 January	8½	8·29	9·79	3·50	209·35
February	8½	8·23	9·89	3·82	193·47
March	8½	8·10	10·16	3·93	188·85
April	8½	7·82	10·23	3·85	193·04
May	7½	7·33	10·34	3·87	191·66
June	7½	7·08	10·38	3·79	196·83
July	11½	11·20	10·84	4·06	185·22
August	11½	11·28	11·37	4·20	179·69
September	11½	11·25	11·60	4·48	177·52
October	11½	10·96	11·31	4·15	182·90
November	13	12·85	11·89	4·40	173·77
December	13	12·82	12·38	5·28	145·37
1974 January	12½	12·40	12·79	5·29	144·94
February	..				
March	..				

(1) With effect from 13 October 1972, the Bank's minimum lending rate to the market will normally be ½% higher than the average rate of discount for Treasury bills established at the weekly tender, rounded to the nearest ¼% above; the rate normally becomes effective, for lending by the Bank, from the following Monday.

Measures of variability of some major series included in *Economic Trends* (1)

	Page	Period covered	Average percentage changes			$\bar{I}/\bar{C}$	MCD or QCD	$\bar{I}/\bar{C}$ for MCD (or QCD) span
			$\overline{CI}$	$\bar{I}$	$\bar{C}$			
Quarterly series								
National income and components at 1970 prices								
GDP, factor cost								
Expenditure based	2, 28	1st quarter 1963 to 2nd quarter 1973	1·3	0·9	0·8	1·1	2	0·4
Income based	2	" " " " " " "	1·3	0·8	0·9	0·9	1	0·9
Output based	2	" " " " " " "	0·9	0·5	0·8	0·6	1	0·6
Average estimate	2	" " " " " " "	1·0	0·7	0·8	0·8	1	0·8
Consumers' expenditure	3	" " " " " " "	1·2	0·7	0·8	0·9	1	0·9
Fixed capital formation								
Total	4	" " " " " " "	2·4	1·6	1·4	1·2	2	0·5
Manufacturing industry	4, 12	" " " " " " "	3·1	1·9	2·1	0·9	1	0·9
Stockbuilding(2)								
Total	4, 16	" " " " " " "	74·9	68·7	36·1	1·9	2	0·7
Manufacturing	4, 16	" " " " " " "	57·6	45·4	27·7	1·6	2	0·6
Exports: goods and services	8	" " " " " " "	3·6	2·6	1·8	1·4	2	0·6
Imports: goods and services	8	" " " " " " "	2·8	1·9	1·7	1·2	2	0·5
Personal disposable income	3	" " " " " " "	1·5	1·0	0·9	1·1	2	0·4
Other national income series								
Income from employment	28	" " " " " " "	2·1	0·4	2·1	0·2	1	0·2
Gross trading profits of companies	28	" " " " " " "	3·9	2·6	2·5	1·0	2	0·4
Income from rent and self-employment	28	" " " " " " "	2·6	0·5	2·5	0·2	1	0·2
Other quarterly series								
New construction output	23	1st quarter 1964 to 4th quarter 1971	1·6	1·2	0·7	1·6	2	0·9
Money stock (M_3) (3)	39	1st quarter 1963 to 4th quarter 1972	2·6	0·5	2·1	0·2	1	0·2
Monthly series(4)								
Retail sales								
Total: current prices	11	January 1961 to August 1973	1·0	0·8	0·5	1·5	2	0·8
Total: constant prices	11	" " " " "	0·9	0·8	0·2	3·5	4	0·9
Food shops	11	" " " " "	0·6	0·6	0·1	3·9	5	0·9
Clothing and footwear shops	11	" " " " "	2·0	2·0	0·3	5·7	6	
Durable goods shops	11	" " " " "	1·6	1·4	0·7	2·1	3	0·7
Other non-food shops	11	" " " " "	1·0	1·0	0·4	2·7	3	0·9
Cars: new registrations	11	January 1954 to December 1972	7·2	6·5	2·5	2·6	4	0·7
Housing: public authorities(5)								
Starts	15	January 1956 to December 1972	11·8	11·6	1·5	7·6	6	
Completions	15	" " " " "	7·4	7·3	1·1	6·7	6	
Housing: private								
Starts	15	" " " " "	7·9	7·5	1·9	3·9	5	0·8
Completions	15	" " " " "	5·5	5·5	0·9	6·2	6	
Index of industrial production								
All industries	2, 18	January 1968 to December 1972	0·7	0·6	0·2	3·4	4	0·9
Manufacturing industries	2	" " " " "	0·8	0·7	0·3	2·8	3	1·0
Engineering and allied industries	18	" " " " "	1·2	1·2	0·3	4·0	5	0·8
Chemicals and allied industries	18	" " " " "	1·6	1·5	0·4	3·5	4	0·9
Textiles, leather and clothing industries	18	" " " " "	1·5	1·4	0·3	4·7	6	0·9
Crude steel production	21	January 1962 to April 1972	3·9	3·6	1·1	3·2	4	0·9
Passenger car production:								
Home market	22	January 1958 to December 1971	9·0	8·0	2·5	3·2	5	1·0
Export	22	" " " " "	8·3	7·6	2·2	3·4	4	0·9
Commercial vehicle production:								
Home market	22	" " " " "	7·9	7·4	1·6	4·7	6	
Export	22	" " " " "	7·5	7·3	1·6	4·8	5	0·9
Unemployed(6)	26	January 1961 to December 1972	10·8	4·3	9·6	0·4	1	0·4
Unfilled vacancies(6)	3, 26	" " " " "	4·8	2·1	4·2	0·5	1	0·5
Average earnings	3, 29	January 1963 to December 1972	0·8	0·4	0·7	0·6	1	0·6
Exports: value, f.o.b.	31	January 1957 to December 1971	3·7	2·7	0·8	3·4	4	0·8
Imports: value, c.i.f.	31	" " " " "	2·9	1·8	0·8	2·3	3	0·7

(1) For a complete description of these measures see article 'Measuring variability in economic time series' in the August 1972 issue of *Economic Trends*. The following are brief definitions of the measures.

$\overline{CI}$ is the average month to month (quarter to quarter for quarterly series) percentage change without regard to sign, in the seasonally adjusted series.

$\bar{C}$ is the same for the trend component, a smooth flexible moving average of the seasonally adjusted series.

$\bar{I}$ is the same for the irregular component, obtained by dividing the trend component into the seasonally adjusted series, except for those series which are seasonally adjusted using an additional model, see footnotes (2), (3) and (5).

$\bar{I}/\bar{C}$ is therefore a measure of the size of the relative irregularity of the seasonally adjusted series.

The average changes $\bar{I}$ and $\bar{C}$ can also be computed successively over spans of increasing numbers of months (quarters). MCD (QCD), months (quarters) for cyclical dominance, is the shortest span of months (quarters) for which $\bar{I}/\bar{C}$ is less than 1 and therefore represents the minimum period over which changes in the trend are, on average, greater than the irregular movement.

(2) The figures in the table were obtained from an additive analysis of stock changes so $\overline{CI}$, $\bar{I}$ and $\bar{C}$ are not percentage changes but differences in units of £ million. At present seasonal adjustment of the published stocks series is done multiplicatively on the level of stocks.

(3) Although the series is seasonally adjusted additively the figures for $\overline{CI}$, $\bar{I}$ and $\bar{C}$ are presented as percentages of the level of the trend in the preceding quarter.

(4) Series are included in this section if they are normally published in monthly form. For some of these series only short runs of monthly figures are given in *Economic Trends*, and in some cases they are given only as quarterly averages. Reference should be made in these cases to the *Monthly Digest of Statistics*, which contains most of them, or to the original sources.

(5) Series relate to Great Britain, though variability measures calculated from England and Wales component.

(6) The seasonal adjustment is additive, so the figures for $\overline{CI}$, $\bar{I}$ and $\bar{C}$ are not percentage changes but differences in units of thousands.

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